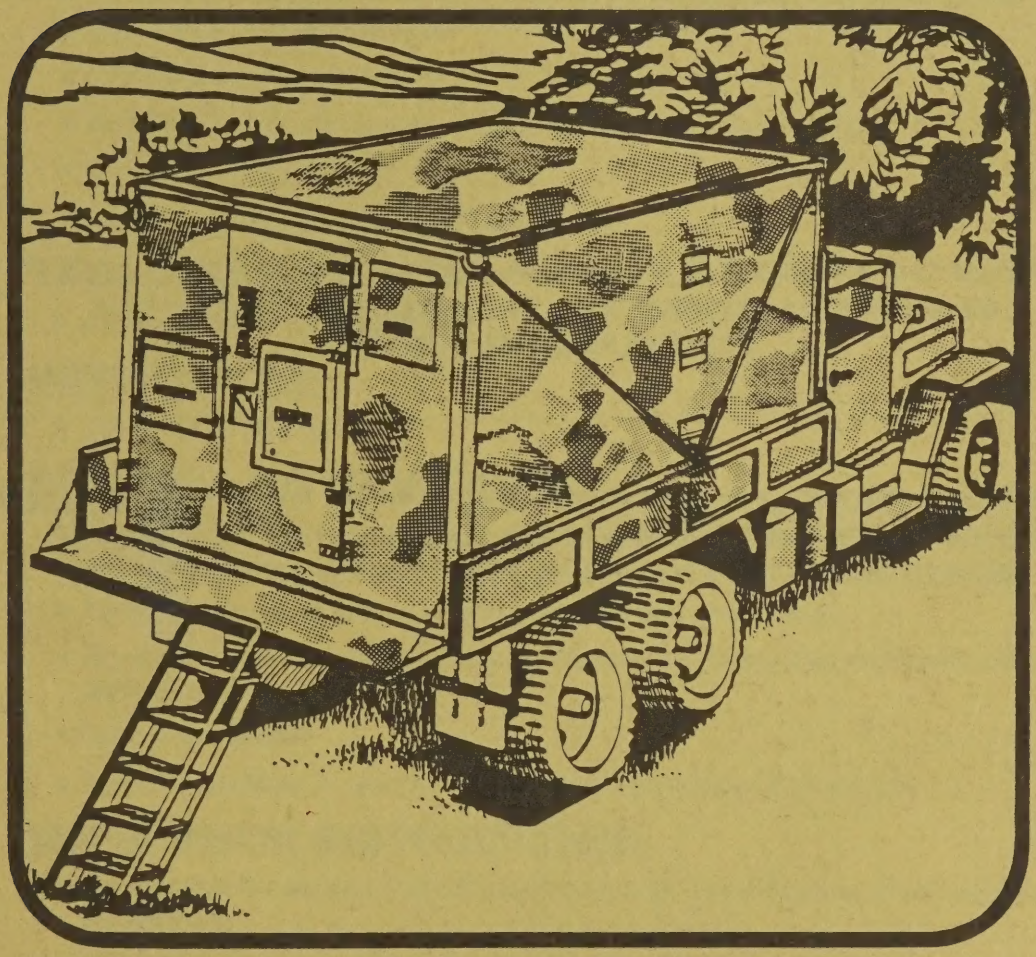
RADIO TERMINAL SET, AN/TRC-117

INSTALLATION AND CABLING OF THE TSEC/KG-27

TEC LESSON 202-113-5187-A



PRODUCED BY
US ARMY SIGNAL CENTER
AND FORT GORDON
FORT GORDON, GEORGIA 30905

OCTOBER 1982

Student/Supervisor Instructions and Pre/Post test are contained within this lesson

READ THE STUDENT/SUPERVISOR INSTRUCTIONS CAREFULLY.
BE SURE YOU UNDERSTAND THEM COMPLETELY BEFORE
CONTINUING THE LESSON.

WHENEVER PRONOUNS OR OTHER REFERENCES DENOTING GENDER
APPEAR IN THIS DOCUMENT, THEY ARE WRITTEN TO REFER TO
EITHER MALE OR FEMALE, UNLESS OTHERWISE INDICATED.

STUDENT/SUPERVISOR INSTRUCTIONS

AUDIENCE:

- MOS 31M
- Skill level 1 and 2

TRAINING OBJECTIVES:

- Install the TSEC/KG-27 in the Radio Terminal Set AN/TRC-117 without a patch panel.
- Install the TSEC/KG-27 in the Radio Terminal Set AN/TRC-117 with a patch panel.

MATERIAL/EQUIPMENT/PERSONNEL REQUIRED:

- TEC Lesson 202-113-5142-A
- TEC Lesson 202-113-5142-J
- AN/TRC-117 equipped with a TSEC/KG-27 and power source
- TSEC/KG-27 Installation Kit
- One supervisor and one qualified operator

TIME REQUIRED:

- Approximately 60 minutes

REFERENCES:

- TM 11-5895-366-14-2

STUDENT INSTRUCTIONS:

- Before taking this lesson, you must have passed the posttest for TEC Lesson 202-113-5175-A.
- Take the pretest. If you pass, you need not take this lesson.
- Ensure that you have all materials, equipment, and personnel required to complete this lesson.
- Take this lesson.
- Take the posttest. If you do not pass, take the lesson and test again.

SUPERVISOR INSTRUCTIONS:

- Be sure that the student has completed the prerequisites listed under student instructions.
- Be sure that the student has all material, equipment, and personnel required to complete this lesson and the pretest/posttest.
- Before administering this lesson you should complete the entire lesson as a student. You may find it helpful to take notes on those teaching points which you feel need additional explanation or emphasis.
- While administering this lesson you should watch the students closely to be sure they are responding to the work required of them by this lesson. If a student appears puzzled, don't allow him to continue until you have provided guidance.

- During the pretest/posttest conduct scoring in the student's presence and IAW the answer key at the end of each step. The answer key is located in the back of this lesson.
- This lesson may be administered to individuals or small groups.
- This lesson and the pretest/posttest are self-contained and require no special consideration except for the materials that must be provided.
- Coordinate with the unit to determine the number of soldiers to take the lesson, and arrange for all materials needed for the presentation.
- This lesson is designed to be presented in conjunction with TEC Lessons 202-113-5165-A through 202-113-5175-A.

PRETEST/POSTTEST

School: Signal
MOS: 31M

TEC Lesson
202-113-5187-A

Radio Terminal Set, AN/TRC-117
Installation and Cabling of the TSEC/KG-27

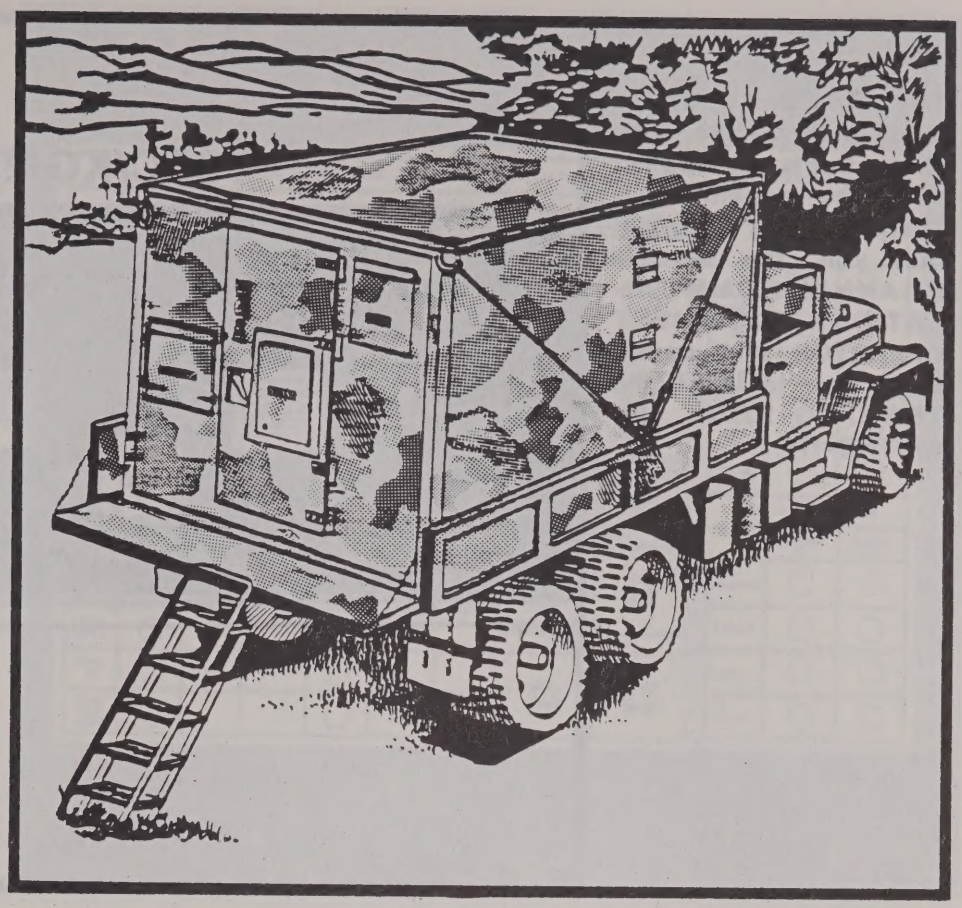
INSTRUCTIONS:

- This is a performance test.
- To pass this test you must correctly perform all procedures with 100% accuracy.
- You will have 60 minutes to complete this test.
- Your instructor will record the time started and time stopped.
- This test is scored GO/NO-GO ONLY.
- If you do not pass the test, take/retake this lesson.

1. Install the TSEC/KG-27 in the Radio Terminal Set AN/TRC-117 without a patch panel.
2. Install the TSEC/KG-27 in the Radio Terminal Set AN/TRC-117 with a patch panel.

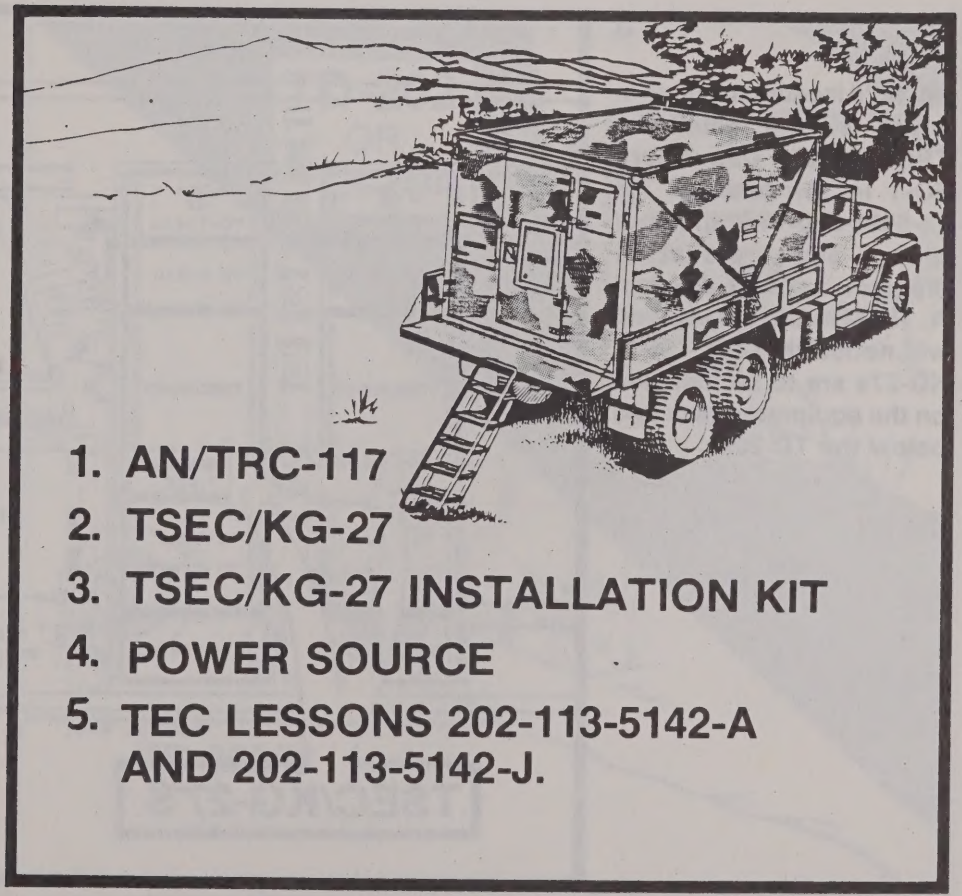
1

This lesson will provide you with the skills and knowledge needed to install the TSEC/KG-27 into the Radio Terminal Set AN/TRC-117.



2

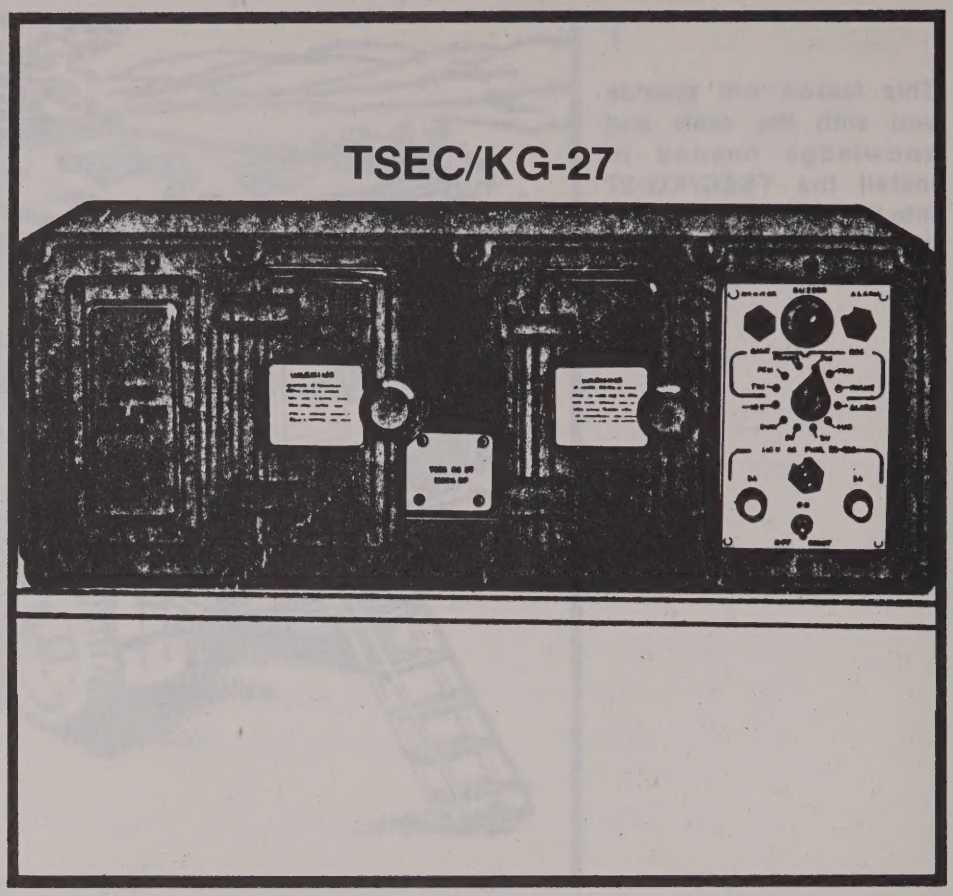
To complete this lesson, you will need an AN/TRC-117, a TSEC/KG-27, a TSEC/KG-27 installation kit, power source, and TEC Lessons 202-113-5142-A and 202-113-5142-J.



1. AN/TRC-117
2. TSEC/KG-27
3. TSEC/KG-27 INSTALLATION KIT
4. POWER SOURCE
5. TEC LESSONS 202-113-5142-A AND 202-113-5142-J.

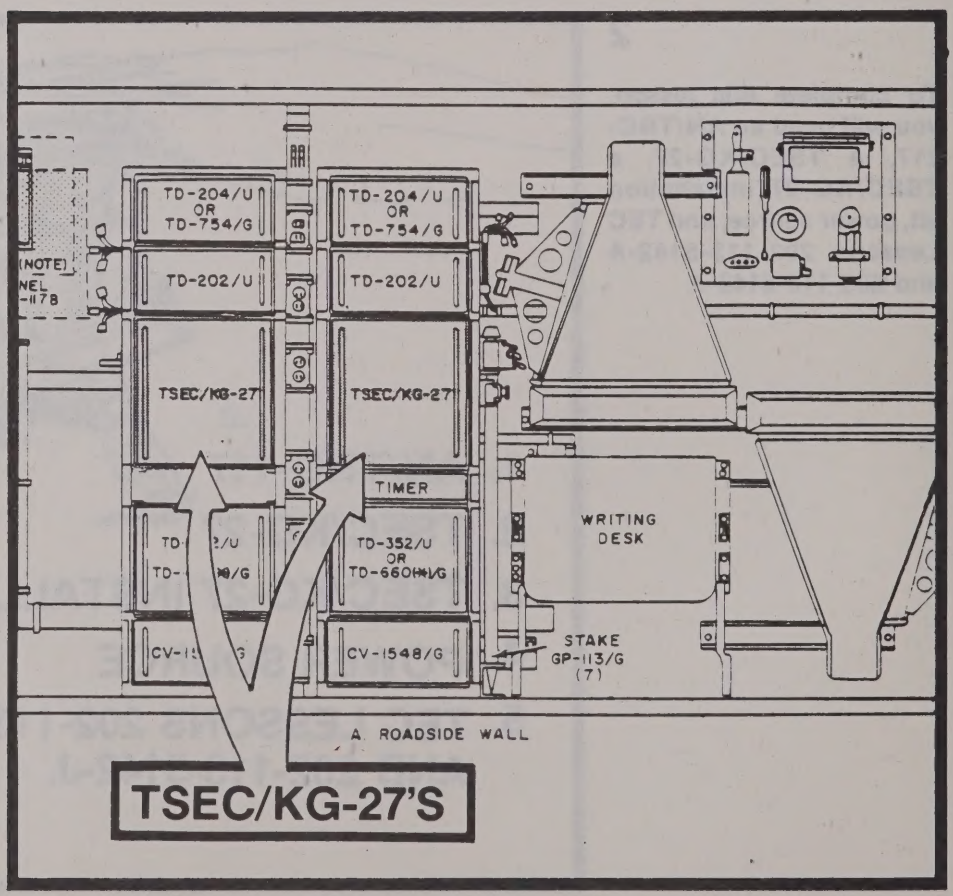
3

The TSEC/KG-27 is required for secure operations, but is not supplied with the assemblage. Therefore, it is important that you, the MULTICHANNEL COMMUNICATIONS EQUIPMENT OPERATOR (31M), understand how to install the TSEC/KG-27 in the AN/TRC-117.



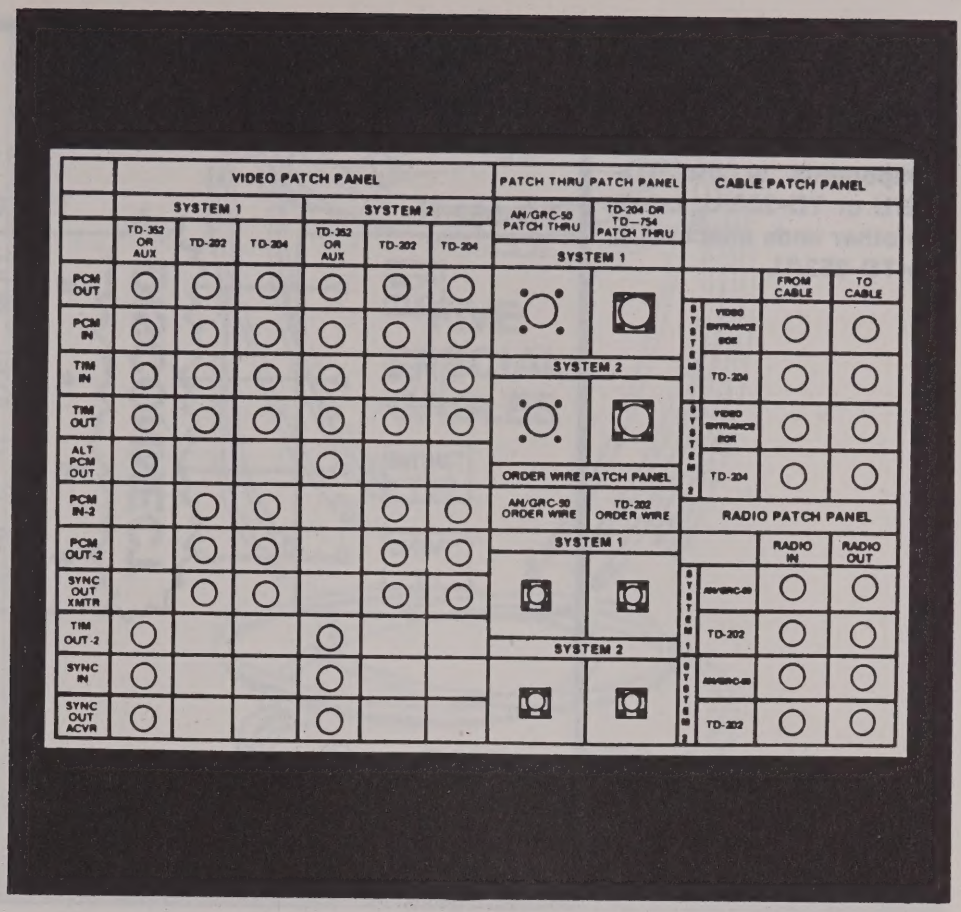
4

So, let's locate the space in which we will install the TSEC/KG-27. Use figure FO-1 in the back of TM 11-5895-366-14-2; the floor plan and elevation diagram. Look at diagram A. ROADSIDE WALL, you will notice that the TSEC/KG-27s are to be installed on the equipment rack just below the TD-202s.



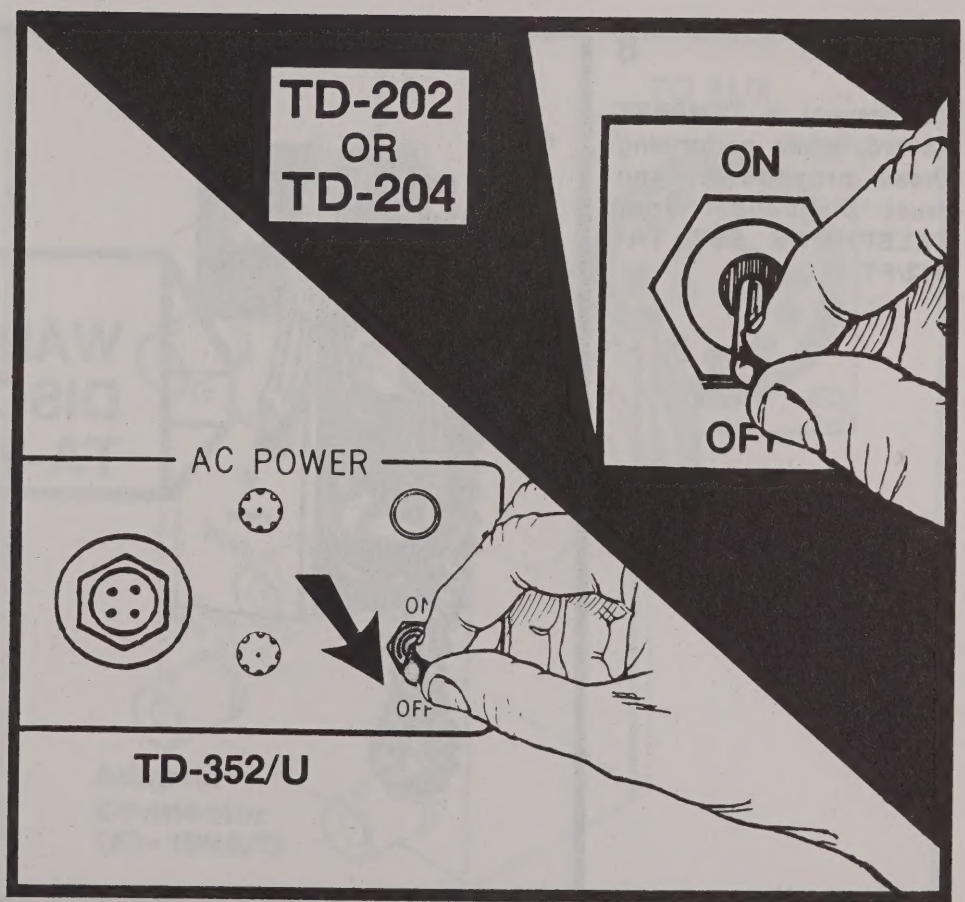
5

The first task will be to install the TSEC/KG-27 into System 1 of an AN/TRC-117 without a patch panel, so IF YOU HAVE AN AN/TRC-117 WITH A PATCH PANEL, GO TO FRAME 57.



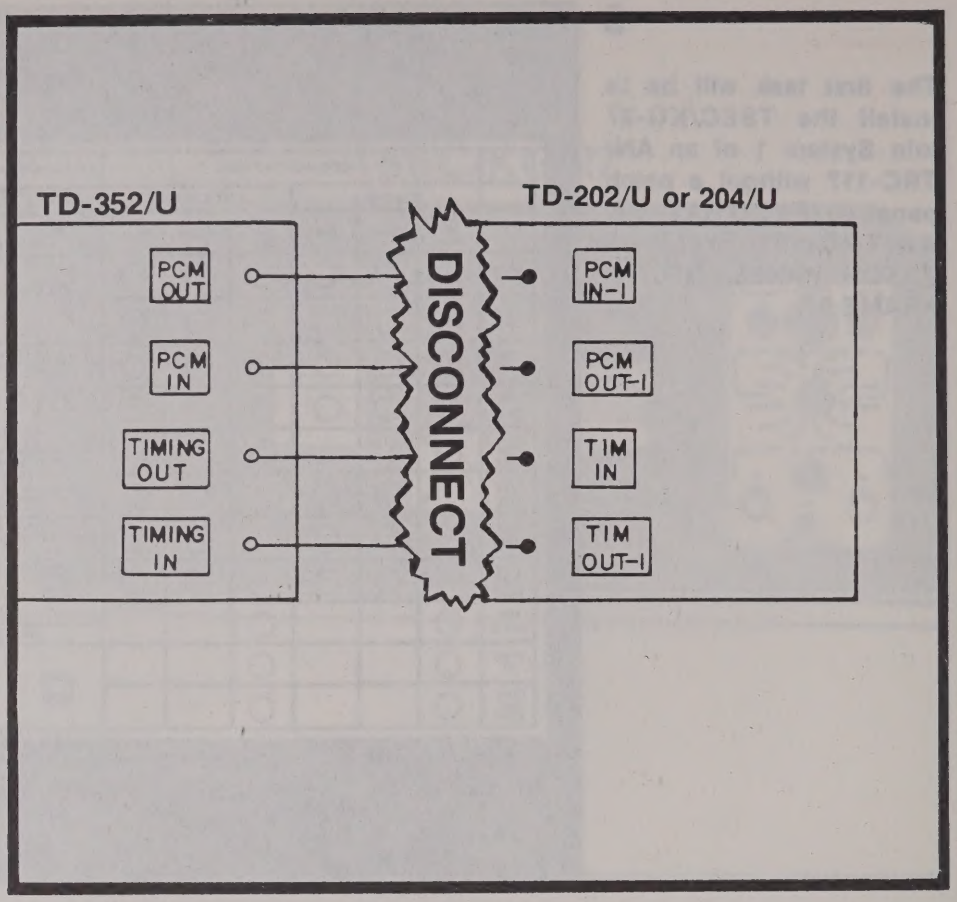
6

Before you start, make sure the POWER switches are turned OFF on the System 1 TD-202, TD-204, and TD-352...



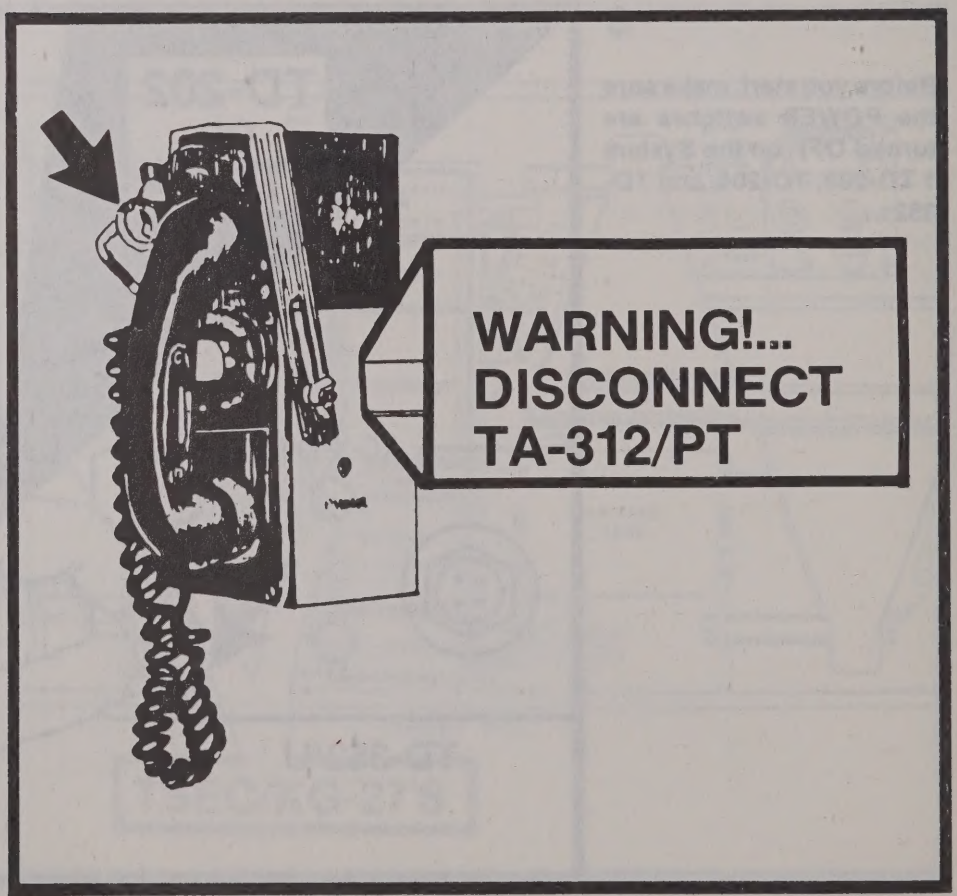
7

...and disconnect the cables between the two components at the TD-202/U or TD-204/U. Leave the other ends attached to the TD-352/U.



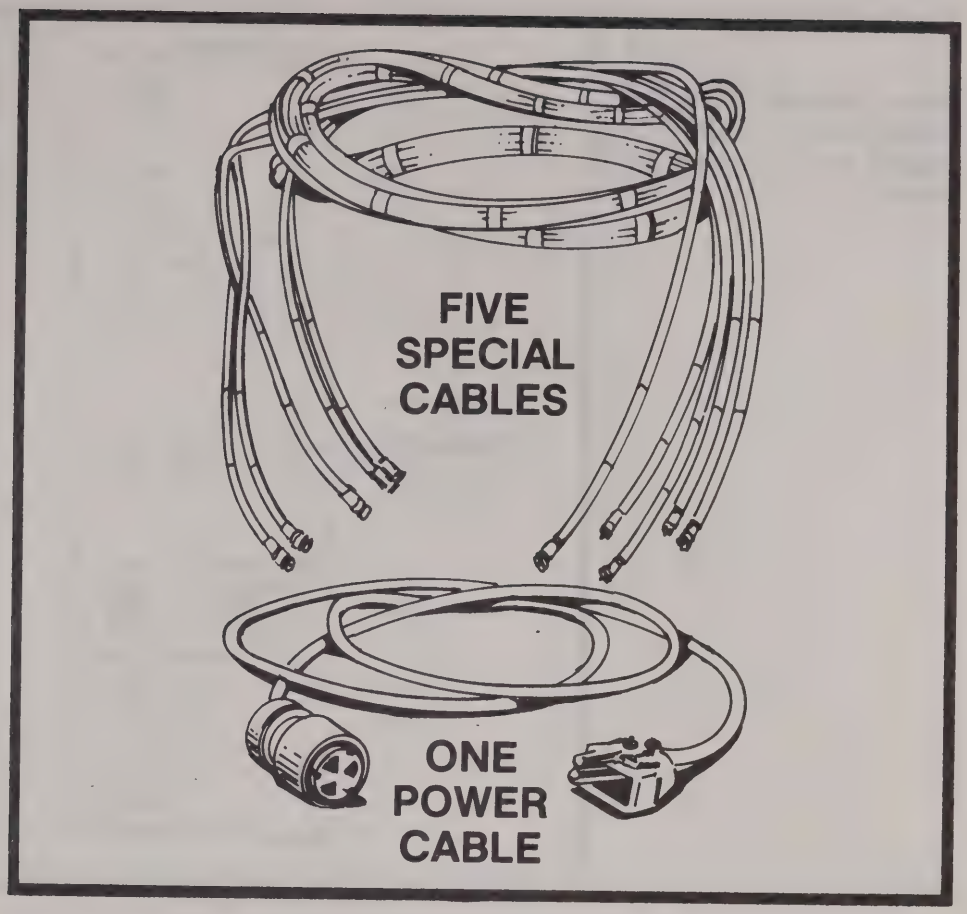
8

To prevent a TEMPEST hazard, while performing these procedures, you must disconnect your TELEPHONE SET TA-312/PT.



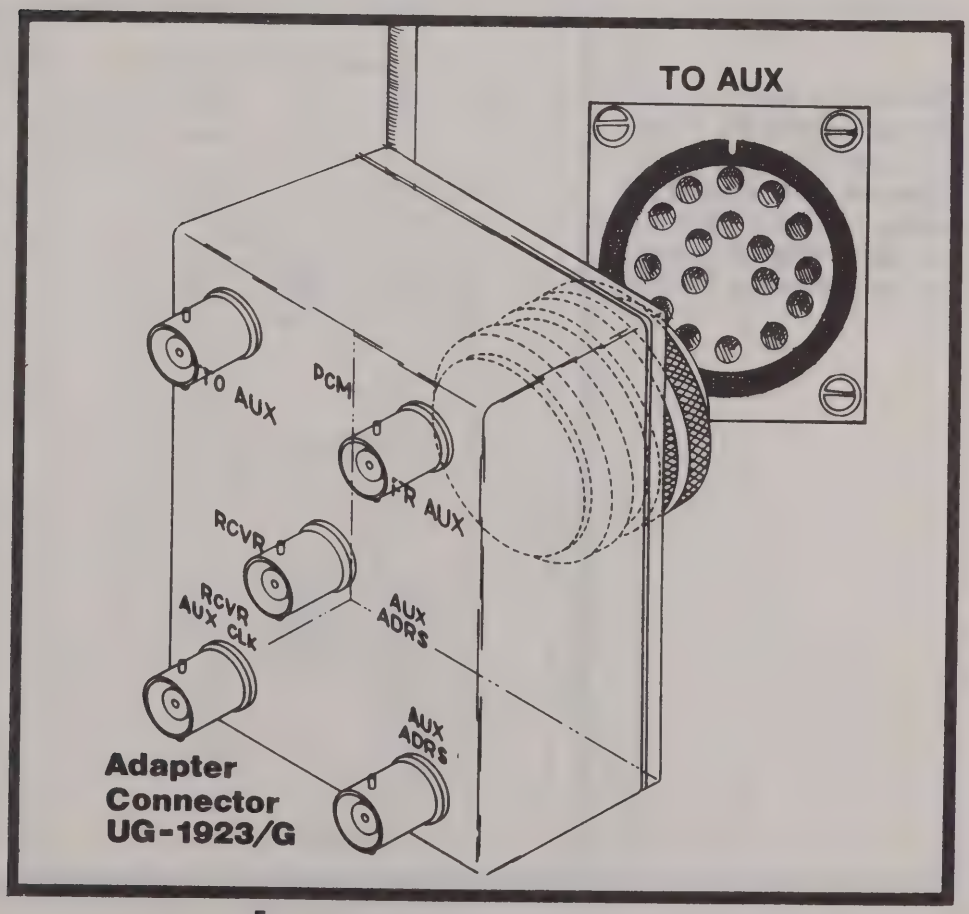
9

When this is done remove the six cables (five special cables and one power) from the TSEC/KG-27 Installation Kit.



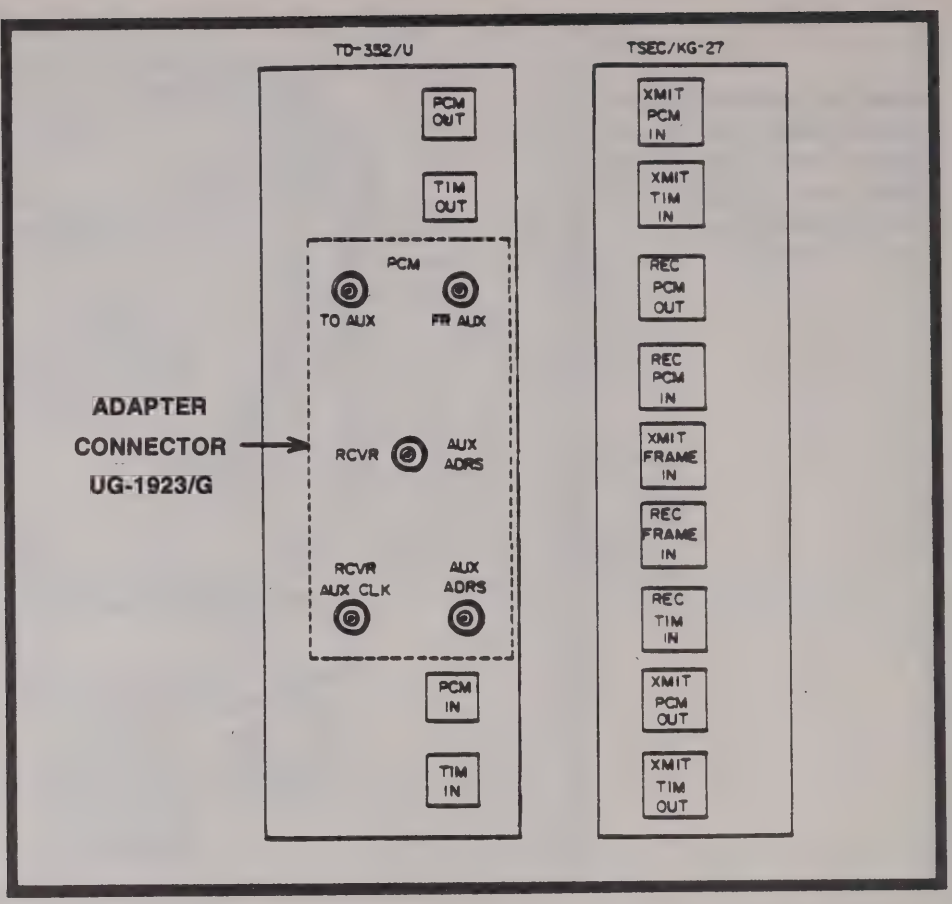
10

Connect the Adapter Connector UG-1923/G to the TD-352/U TO AUX connector (located on the front left corner of the TD-352/U).



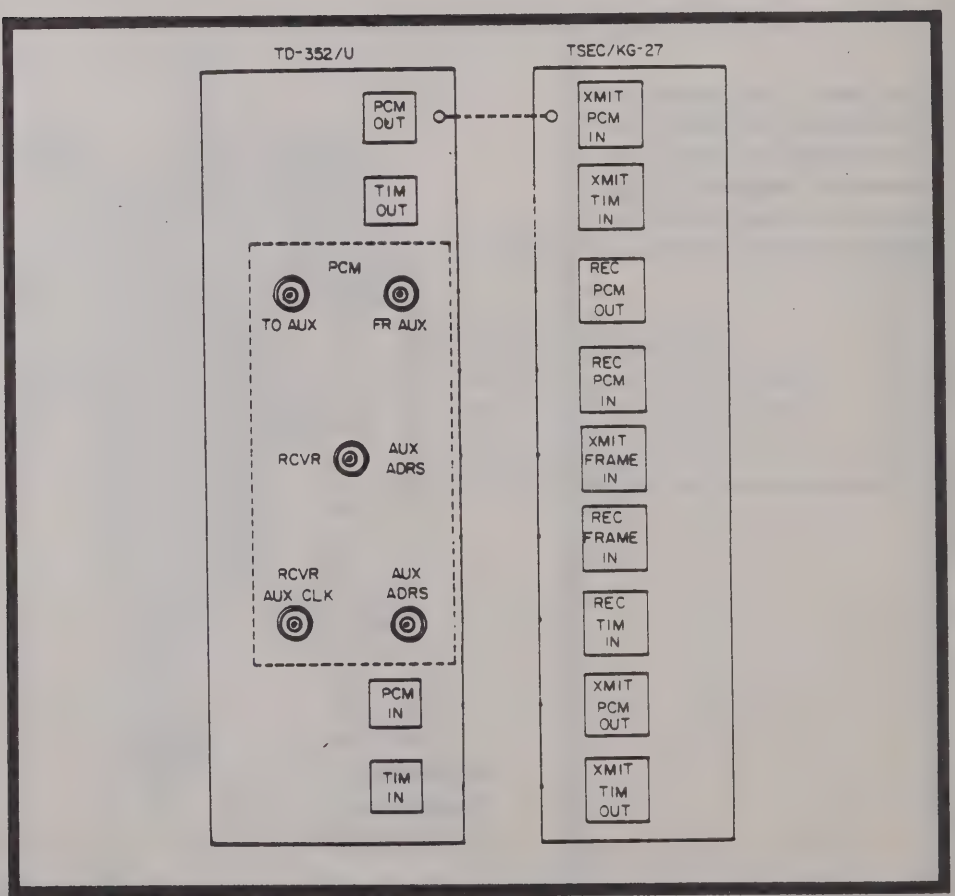
11

Now, you will cable the TSEC/KG-27 to the TD-352/U for a loop-back check.



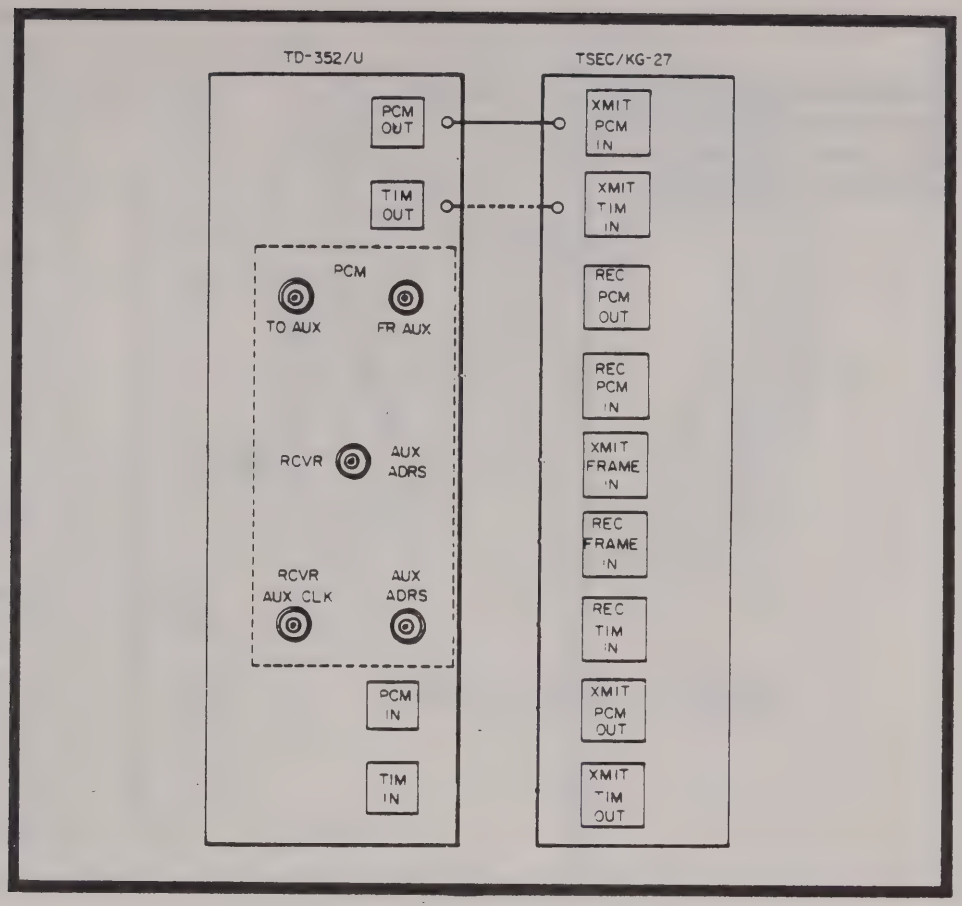
12

To do this, you'll connect the cables from the TD-352 to the TSEC/KG-27. Connect the PCM OUT cable, from the TD-352 to the XMIT PCM IN connector on the rear of the KG-27.



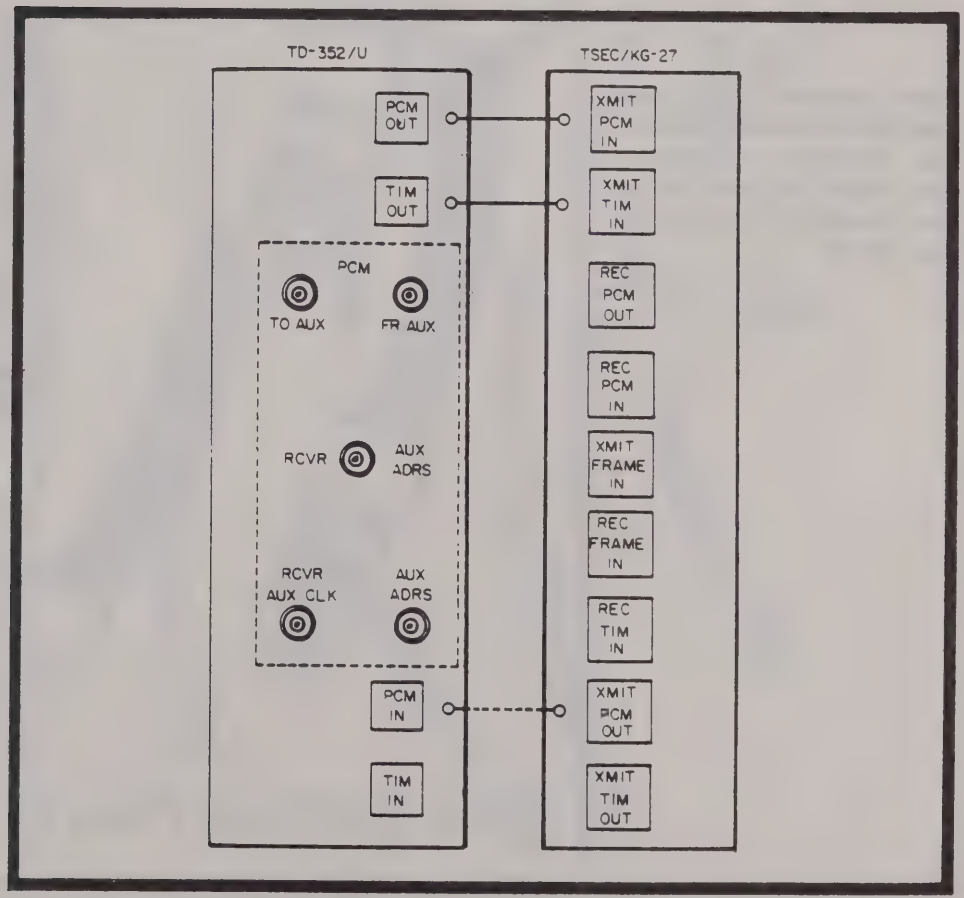
13

Then, connect the TIM OUT cable from the TD-352/U to the XMIT TIM IN connector on the rear of the KG-27.



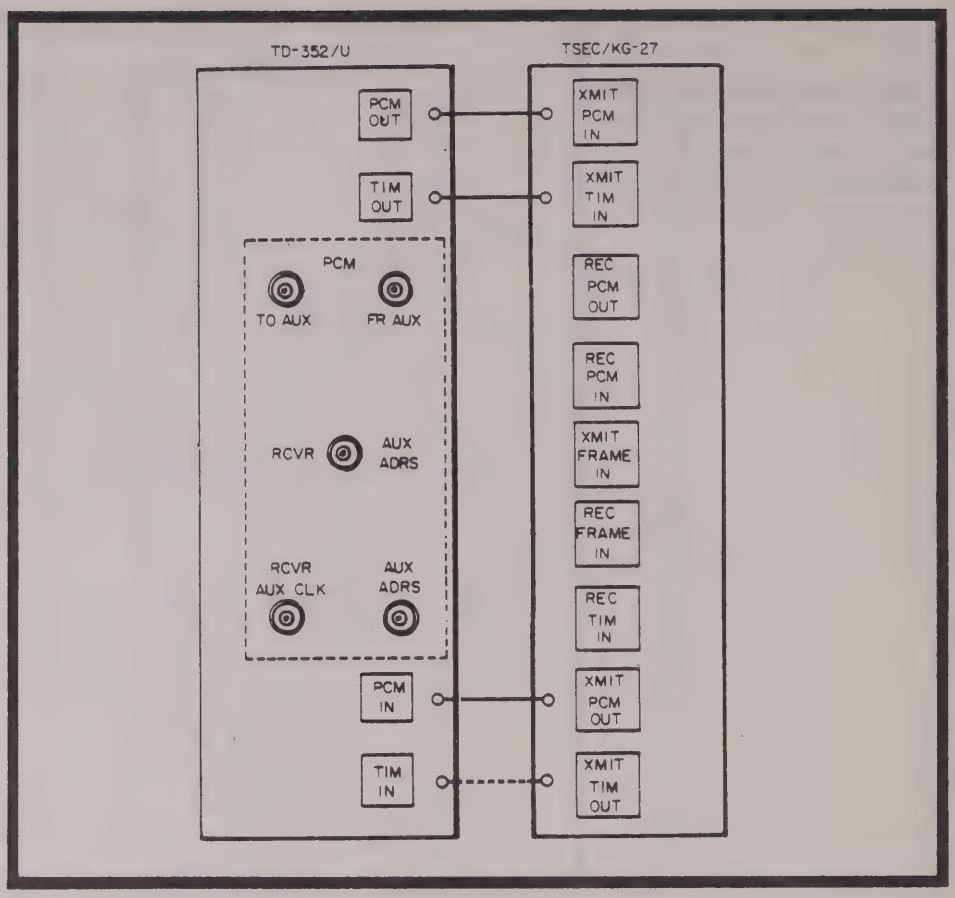
14

Next, connect the PCM IN cable from the TD-352/U to the XMIT PCM OUT connector of the KG-27.



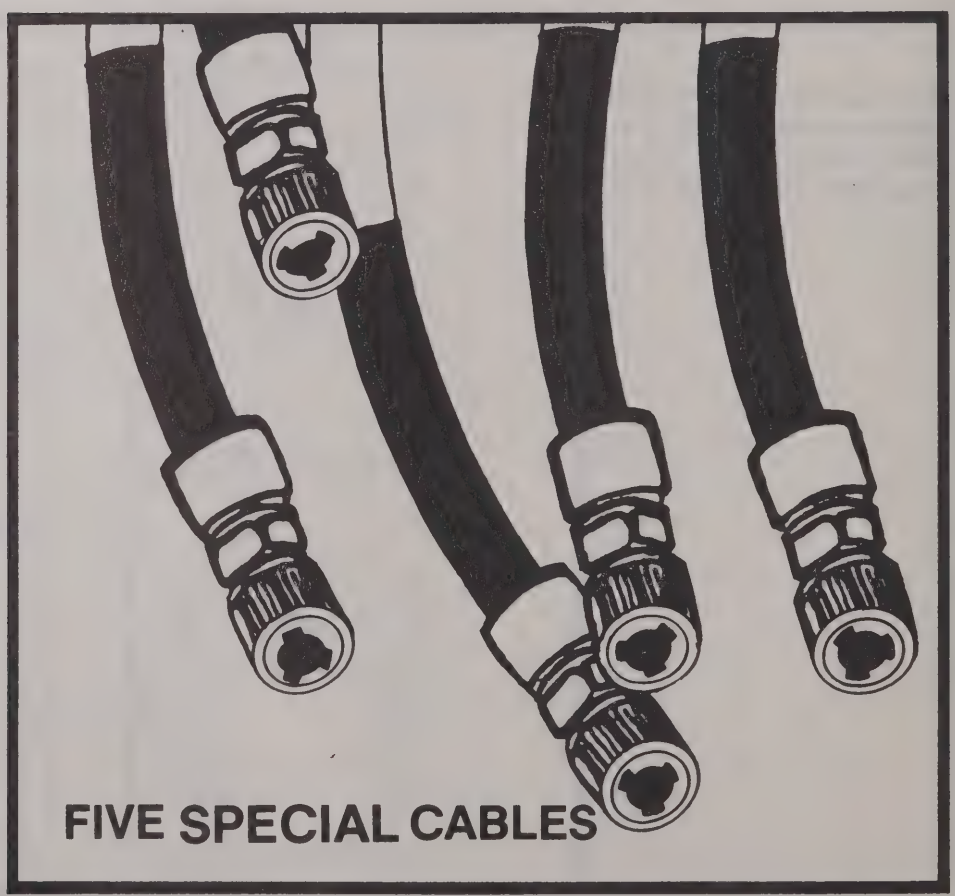
15

Finally, connect the TIM IN cable from the TD-352/U to the XMIT TIM OUT connector of the KG-27.



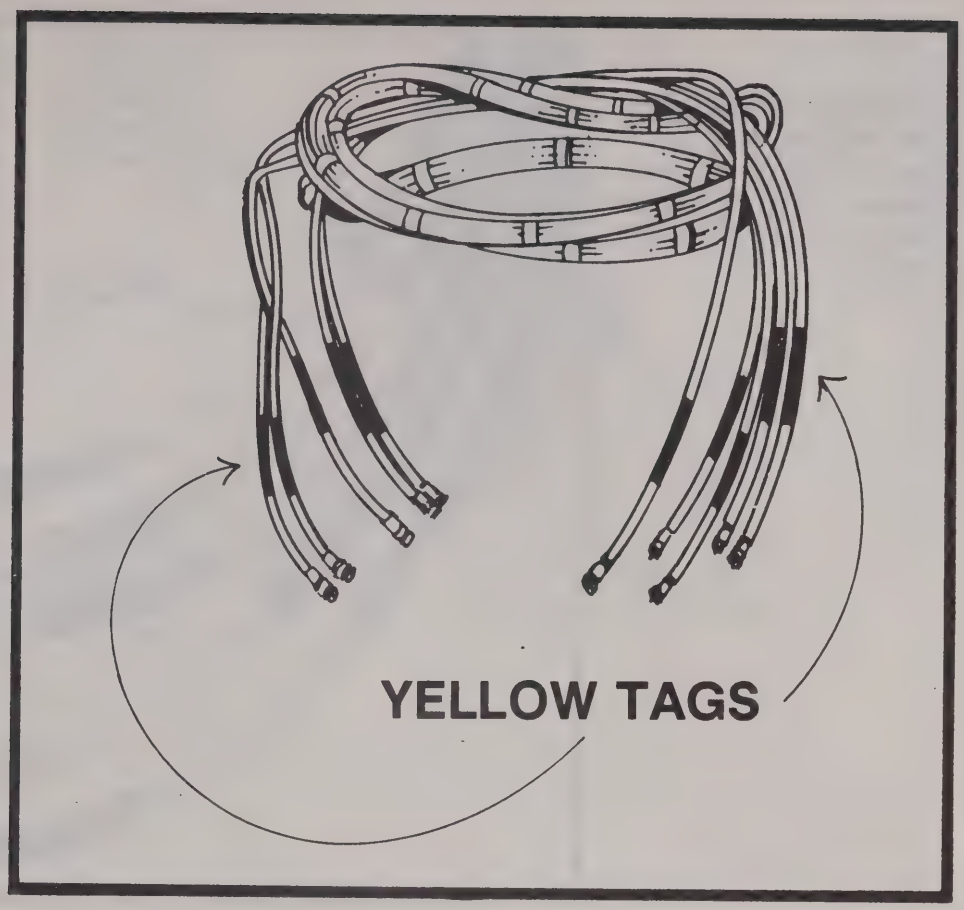
16

Now, you will connect the five special cables between the Adapter Connector UG-1923/G on the front of the TD-352/U to the rear of the KG-27.



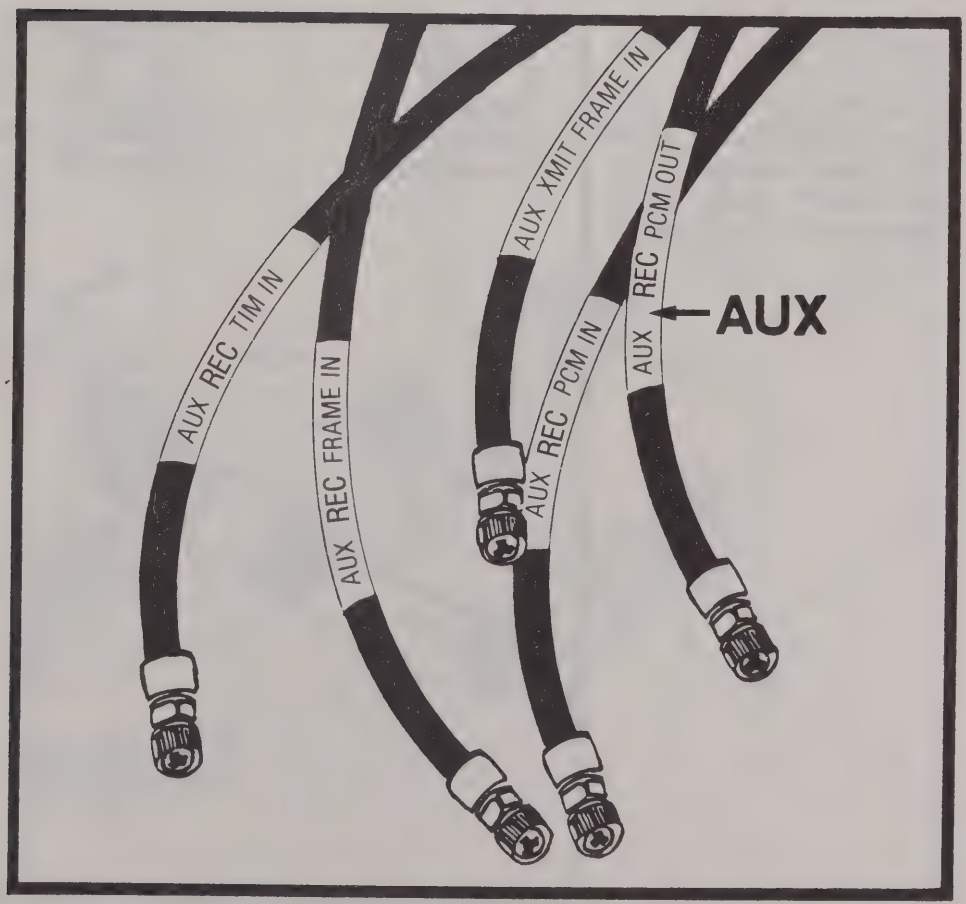
17

Look at the special cables. You will notice that each end of each cable has a yellow tag connected to it.



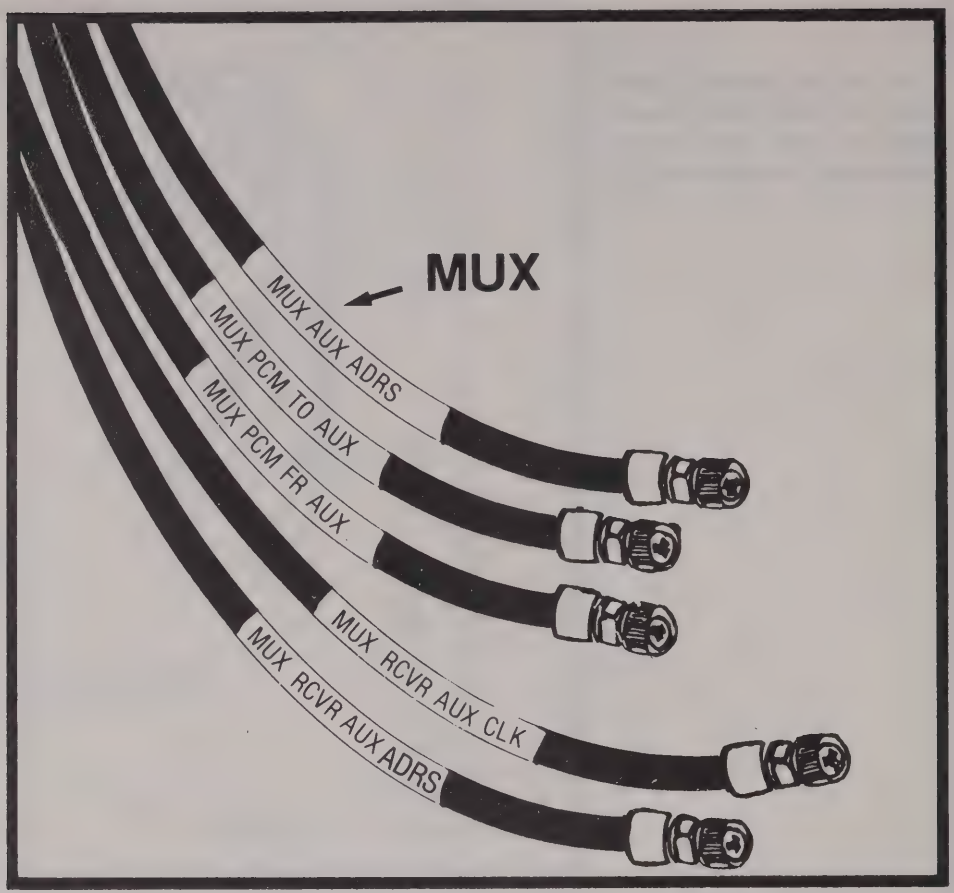
18

Some tags are labeled AUX (auxiliary). These ends will connect to the KG-27.



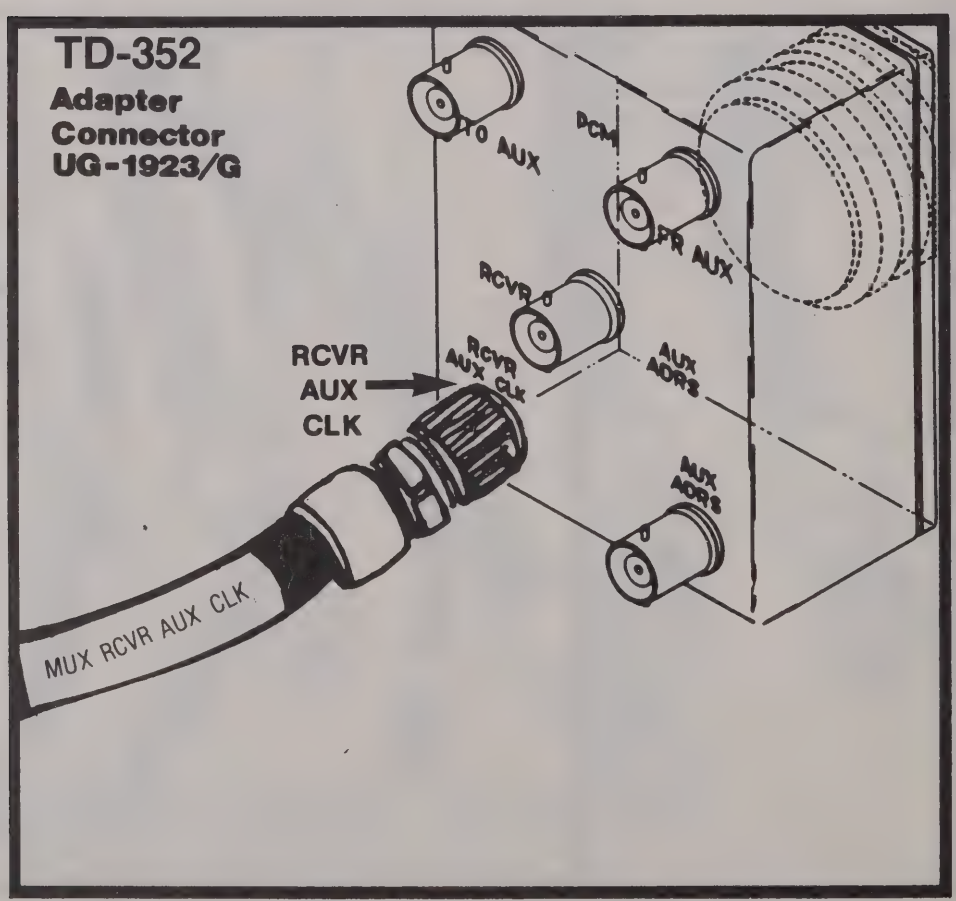
19

Other cable ends will have tags labeled MUX (multiplexer). These ends will connect to the Adapter Connector on the TD-352/U.



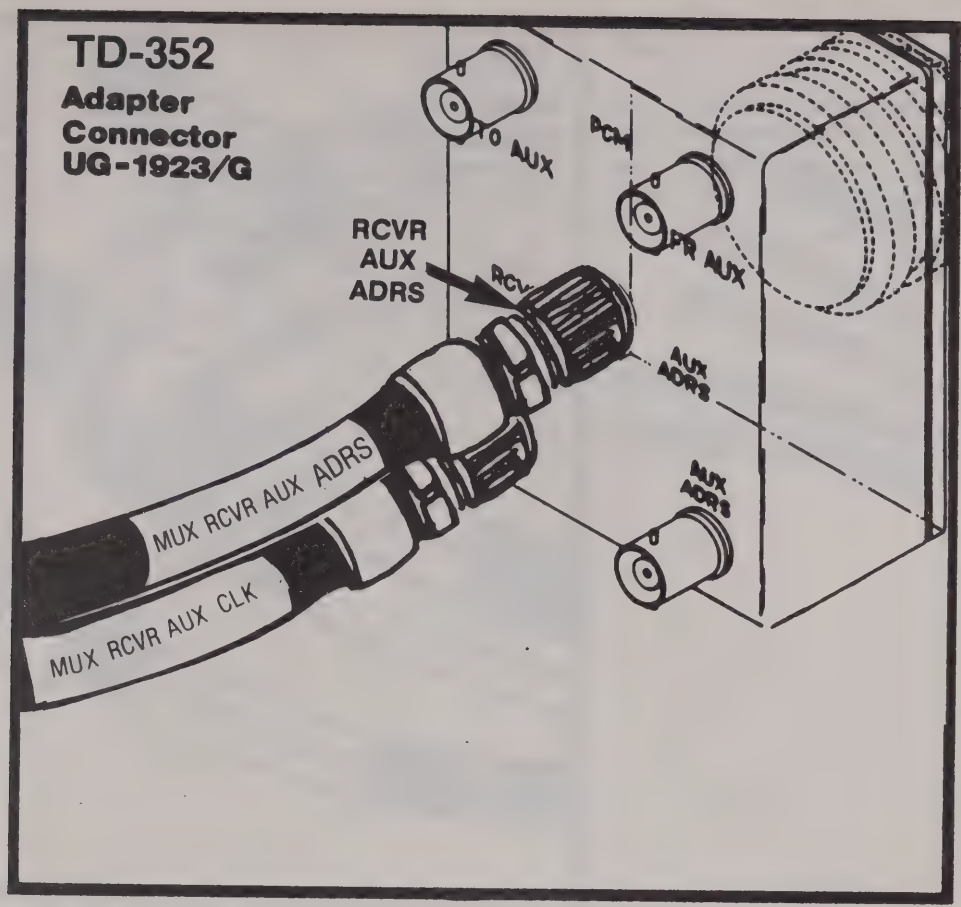
20

First, find a cable end labeled MUX RCVR AUX CLK and connect it to the RCVR AUX CLK connector on the Adapter.



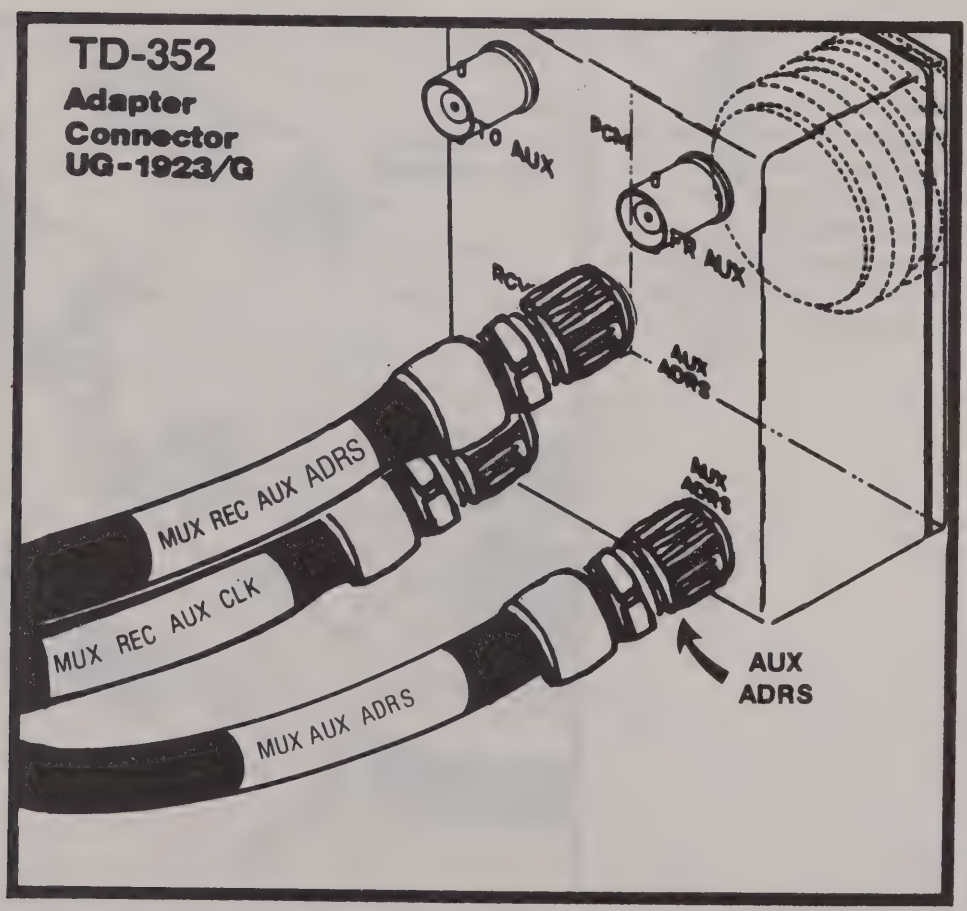
21

Next, find a cable end labeled MUX RCVR AUX ADRS and connect it to the RCVR AUX ADRS connector on the Adapter.



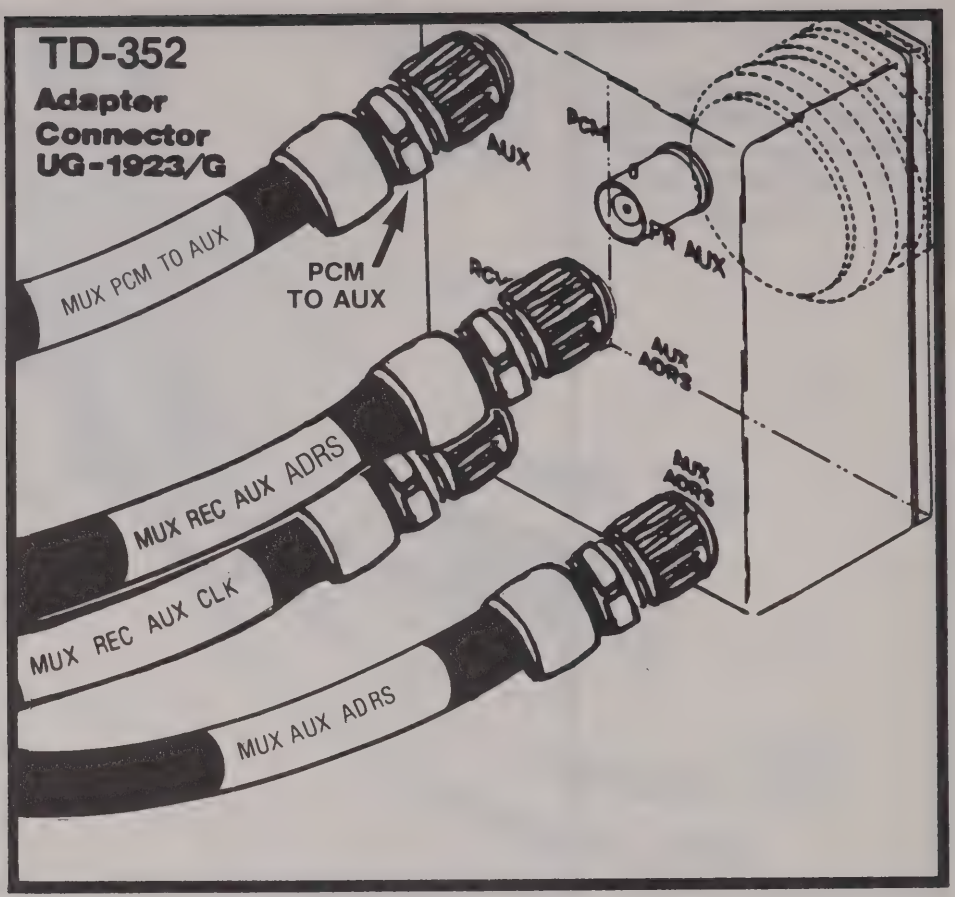
22

Now, find a cable end labeled MUX AUX ADRS and connect it to the Adapter at the AUX ADRS connector.



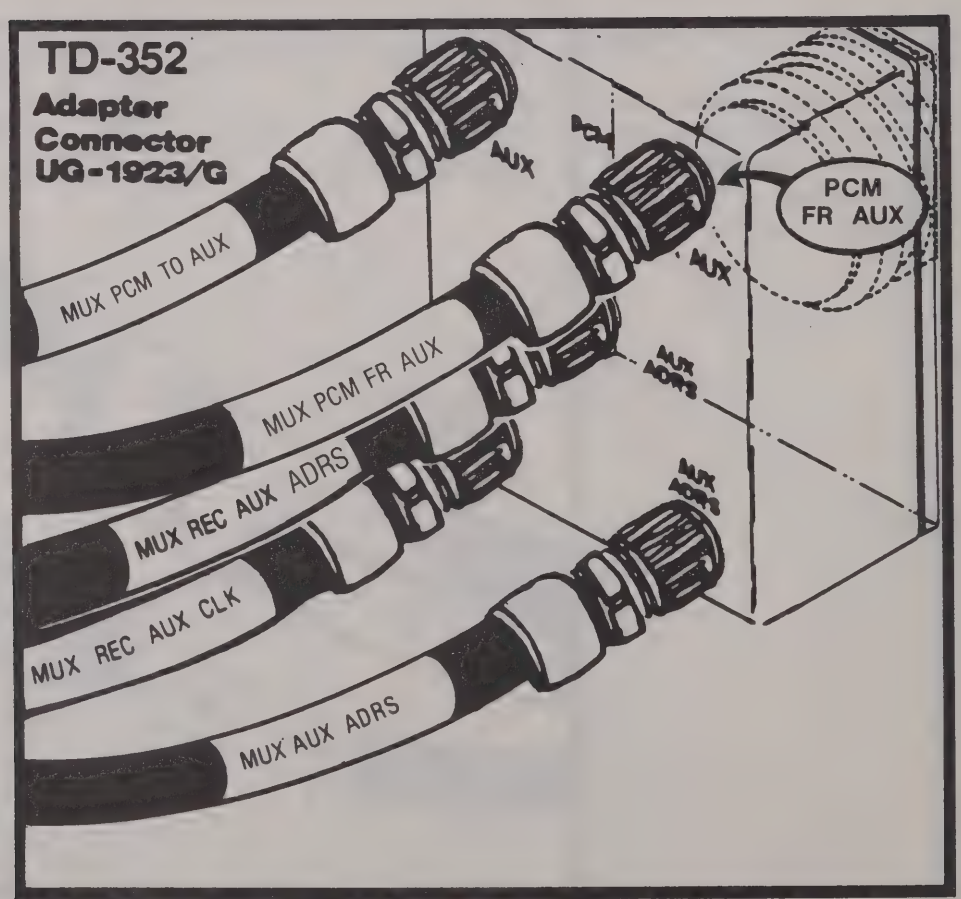
23

Next, find a cable end labeled MUX PCM TO AUX and connect it to the Adapter PCM TO AUX connector.



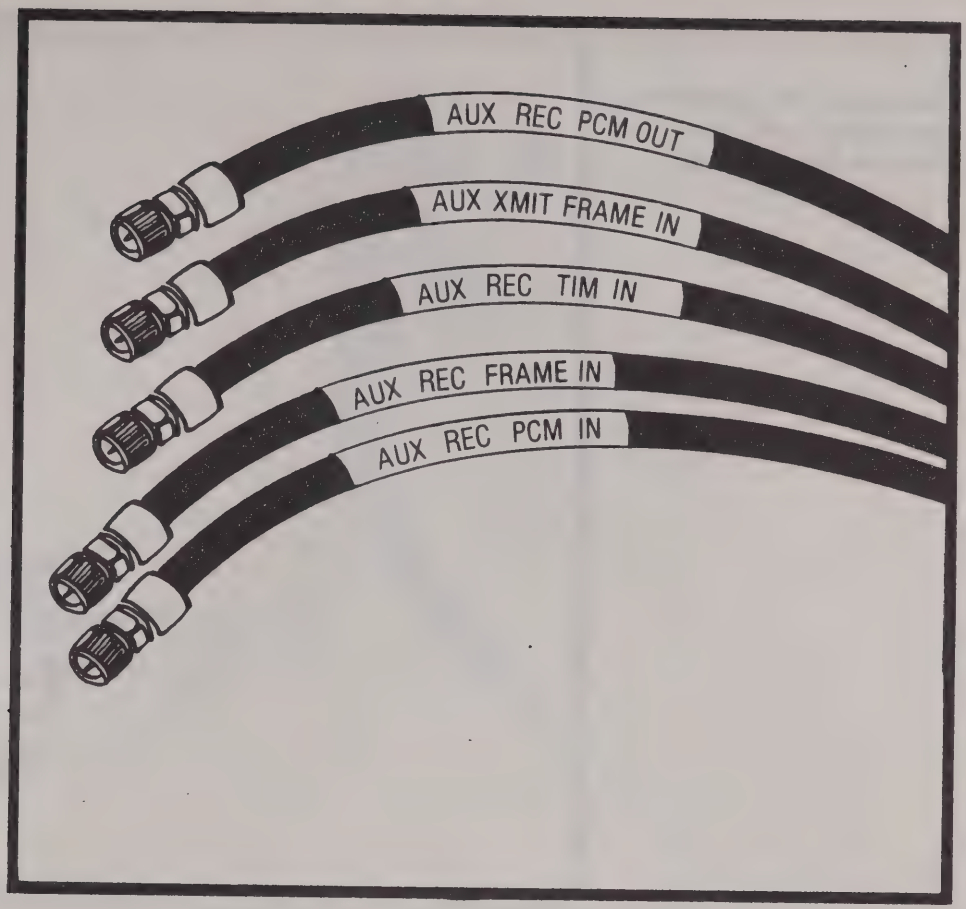
24

Finally, locate a cable end labeled MUX PCM FR AUX and connect it to the Adapter PCM FR AUX connector. You have now connected all five cables to the TD-352/U adapter connector.



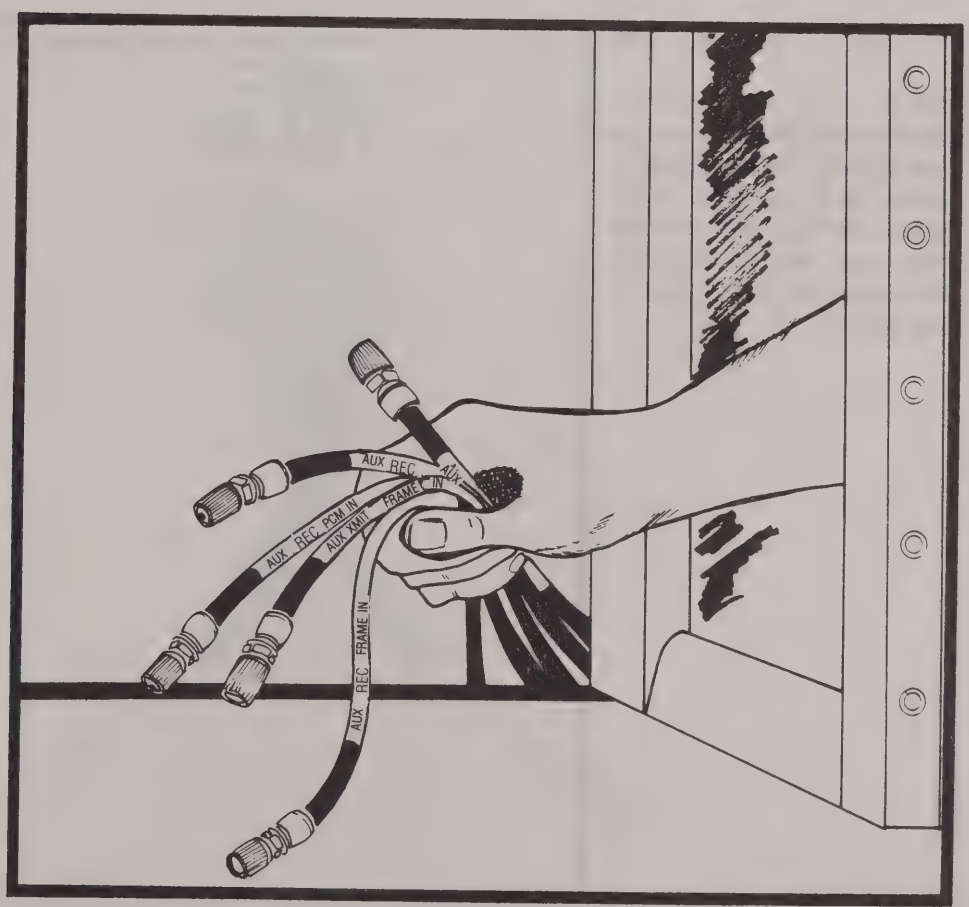
25

You are now going to connect the other ends of these five cables to the KG-27.



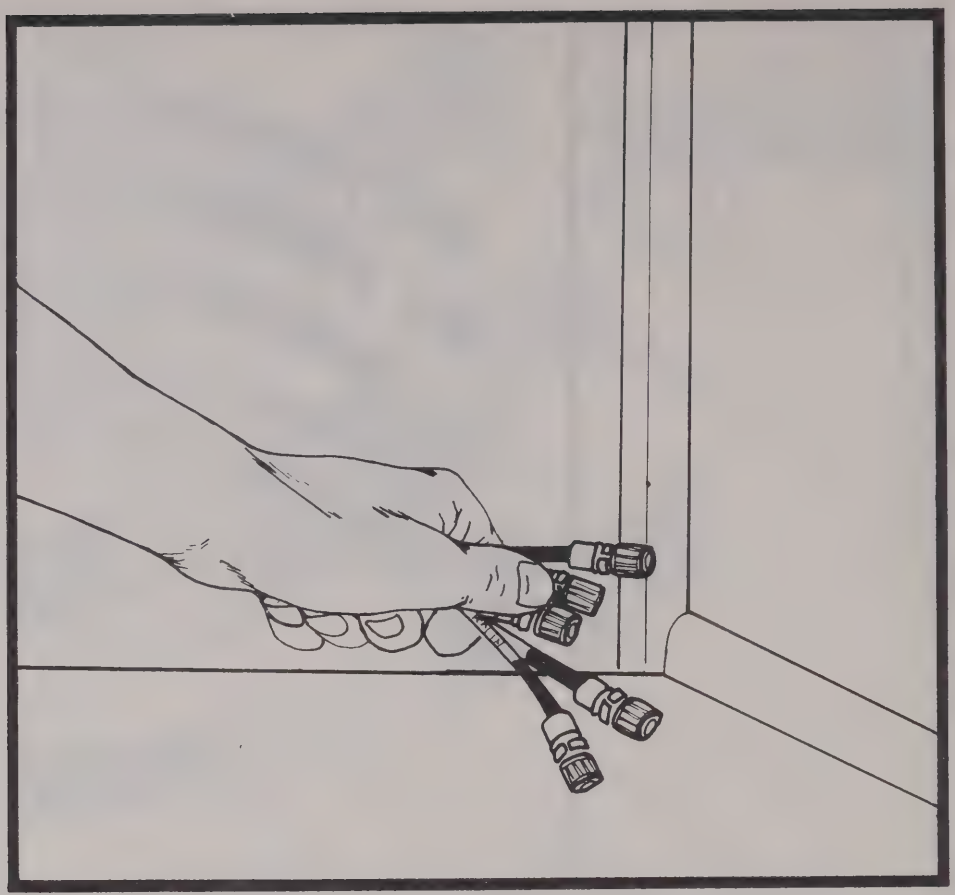
26

Route the unconnected ends of these cables from the TD-352 to the rear of the equipment rack.



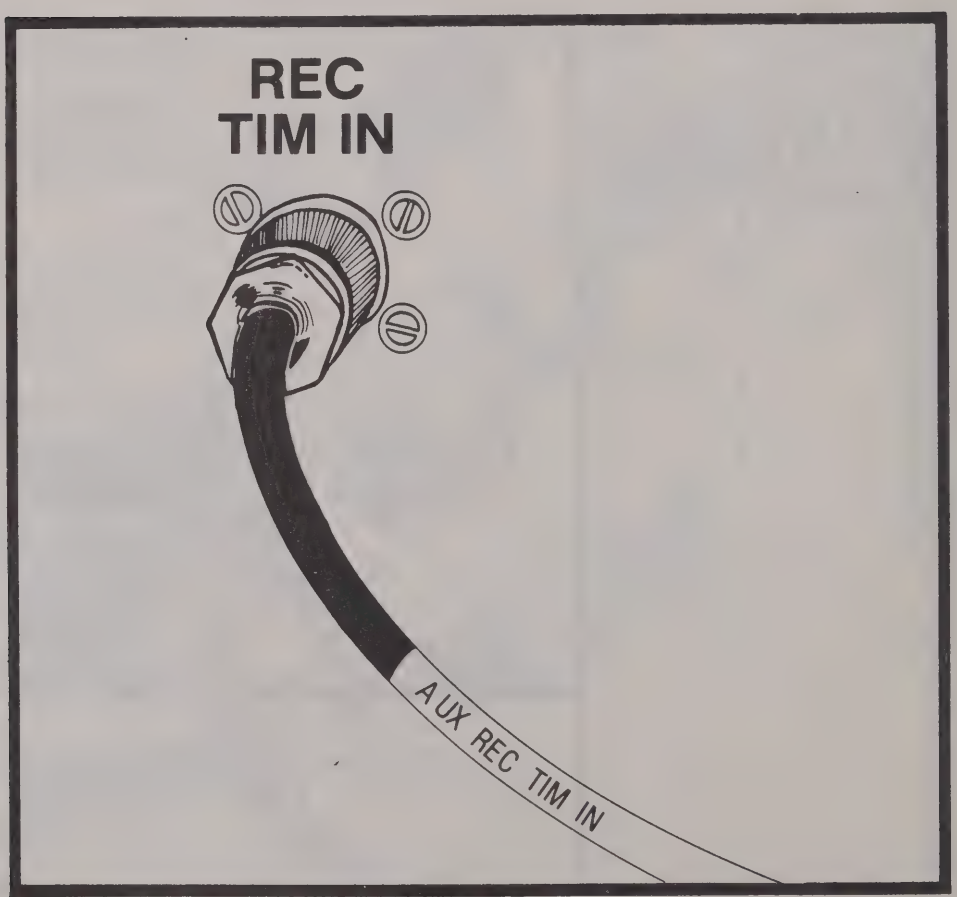
27

Next, route the cables up to the KG-27 rack and bring them in from the rear.



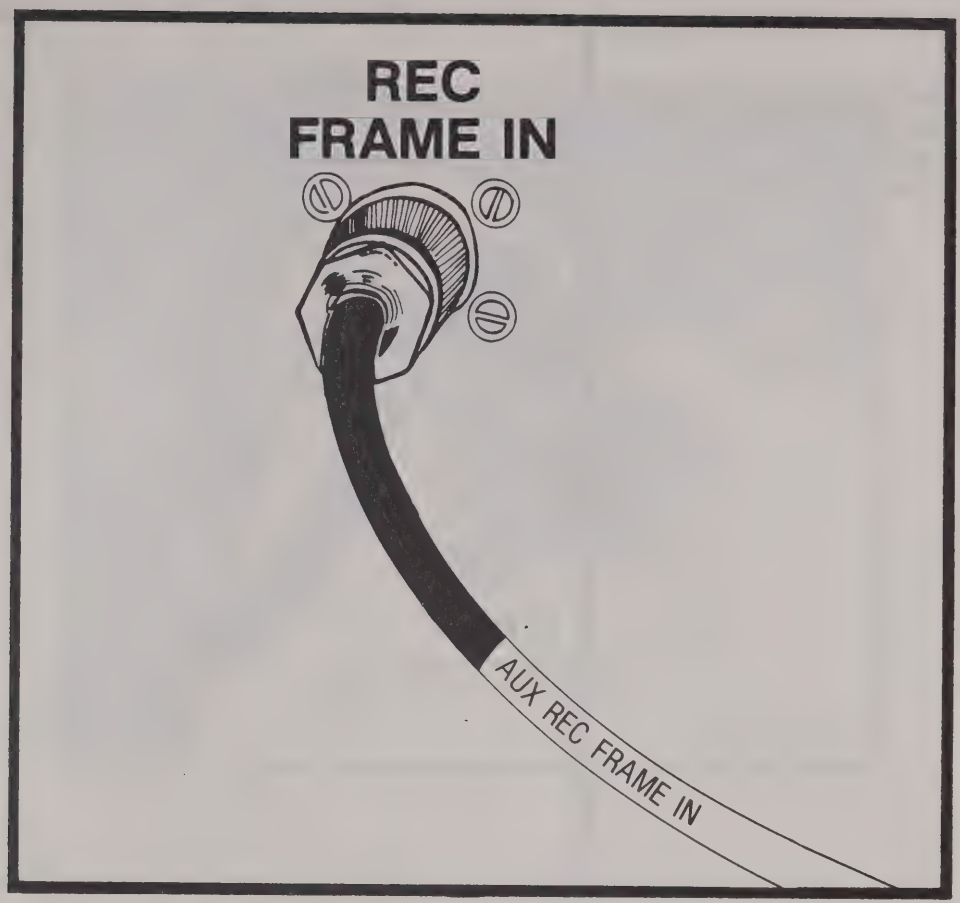
28

Now, you can start connecting these cables to the KG-27. First, locate a cable end labeled AUX REC TIM IN. Then connect this cable to the REC TIM IN connector on the rear of the KG-27.



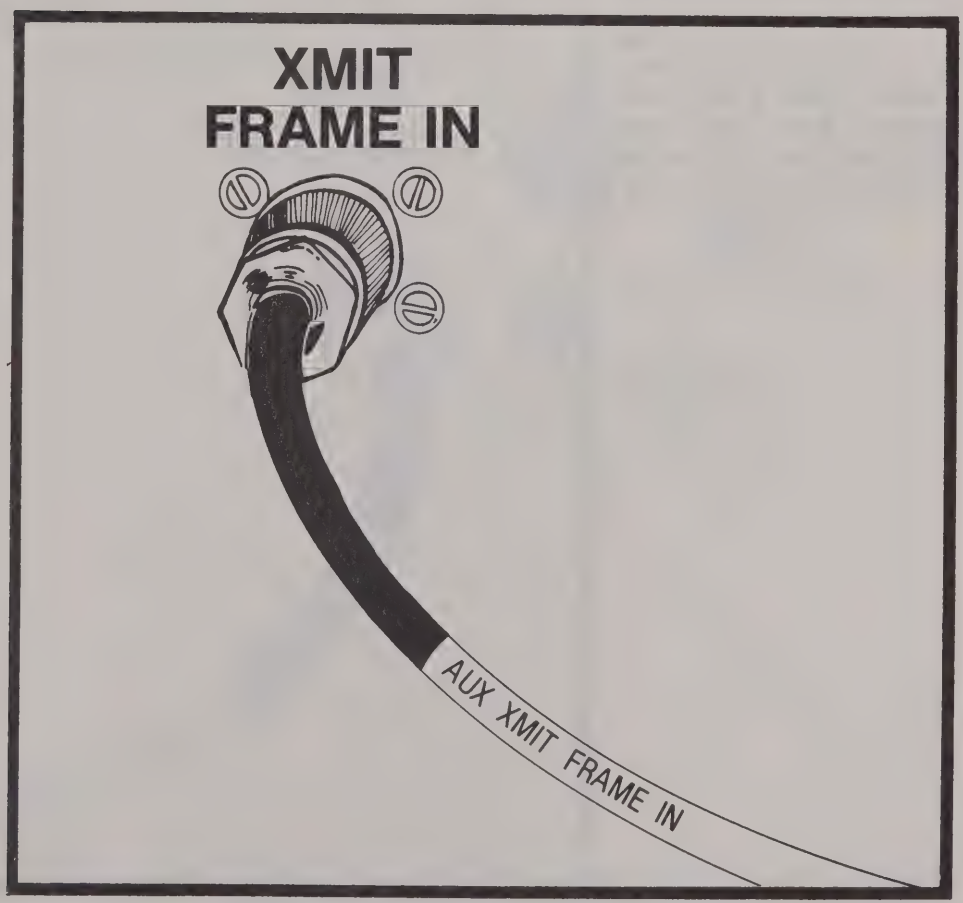
29

Next, locate a cable end labeled AUX REC FRAME IN and connect it to the REC FRAME IN connector on the rear of the KG-27.



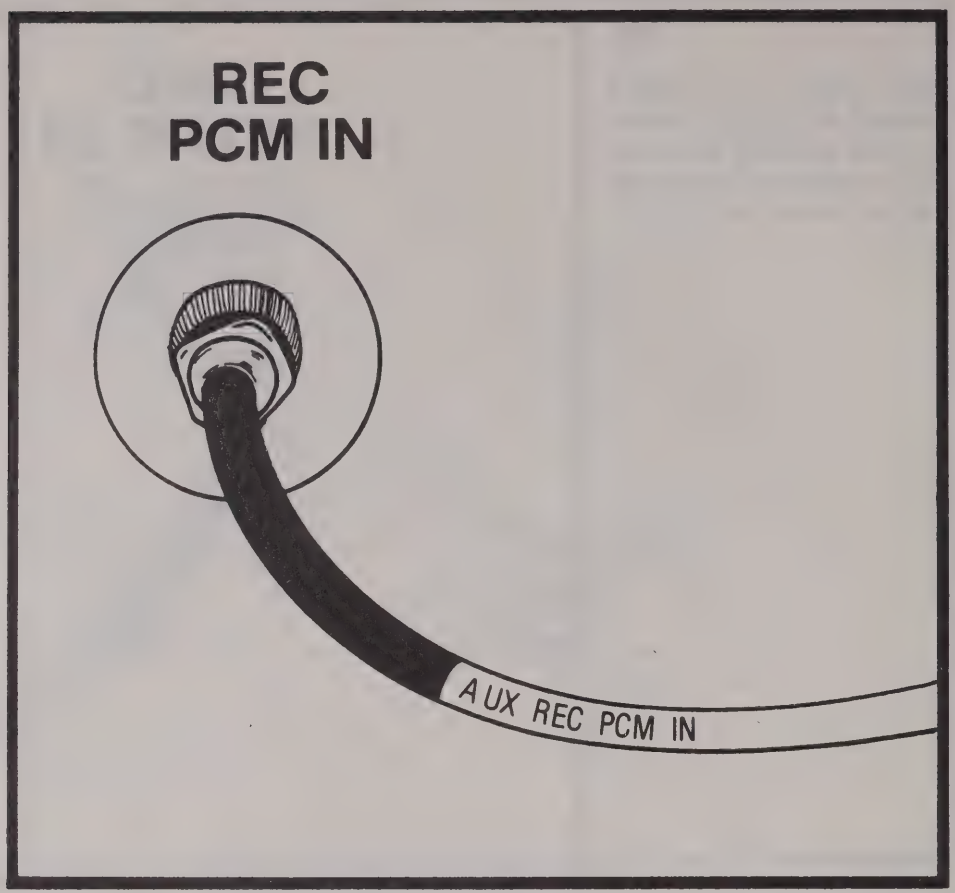
30

Now, locate a cable end labeled AUX XMIT FRAME IN and connect it to the XMIT FRAME IN connector.



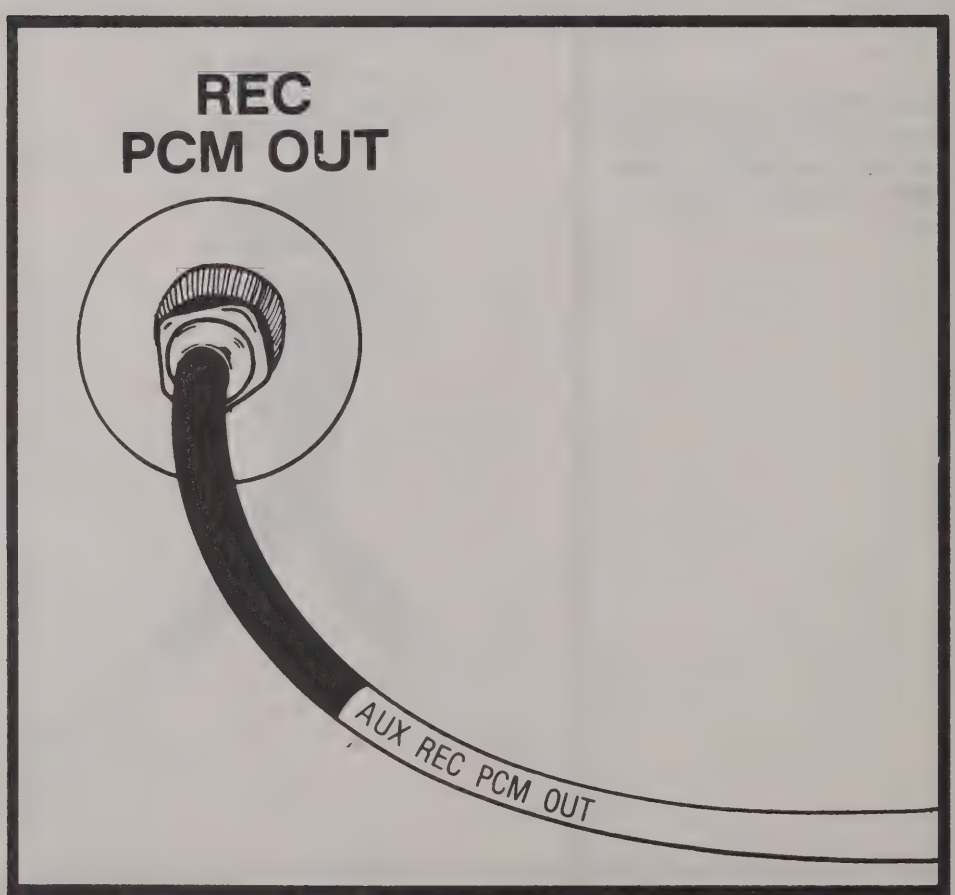
31

Next, locate a cable end labeled AUX REC PCM IN and connect it to the REC PCM IN connector.



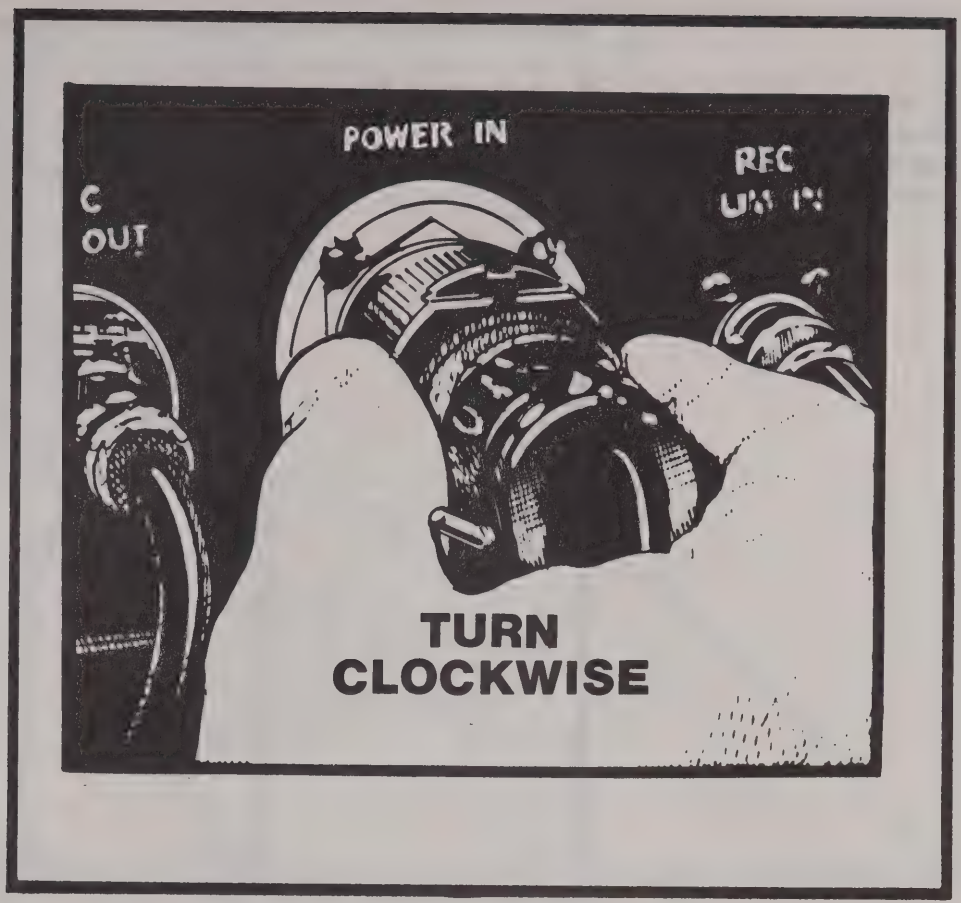
32

Finally, locate a cable end labeled AUX REC PCM OUT and connect it to the REC PCM OUT connector.



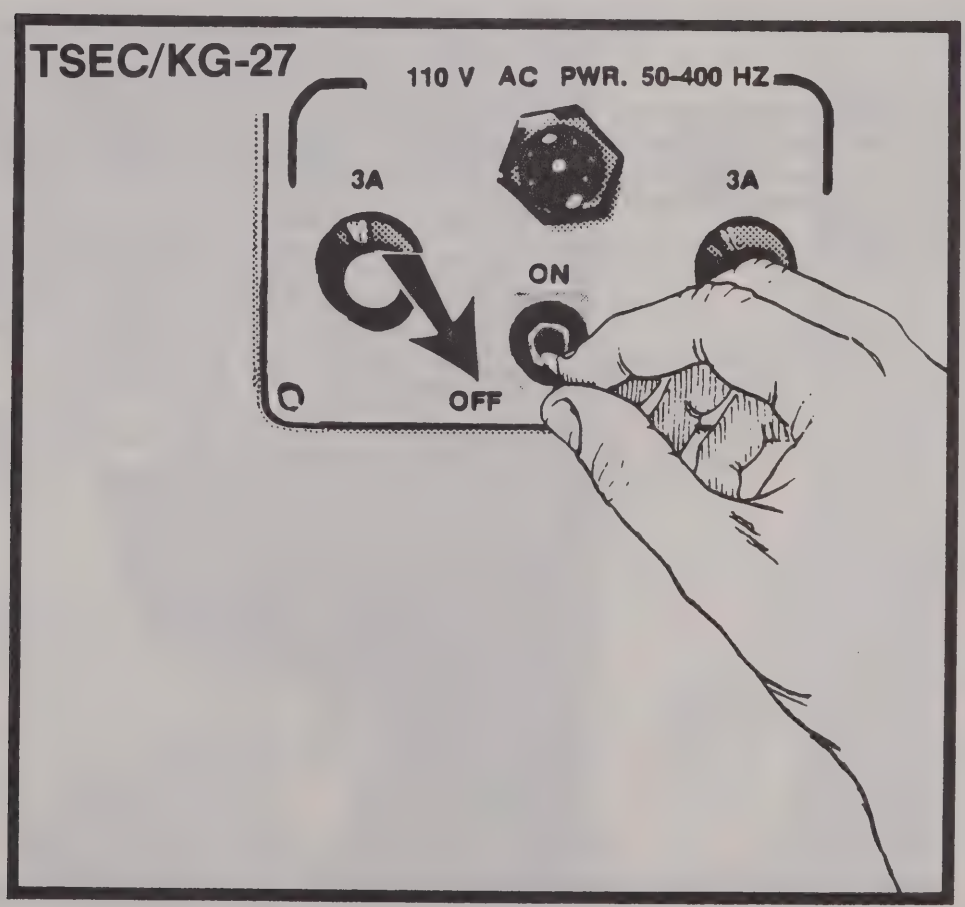
33

You have only one cable left to connect. This is the power cable for the KG-27. Connect the three-pin female connector (of the power cable) to the POWER IN connector on the rear of the KG-27.



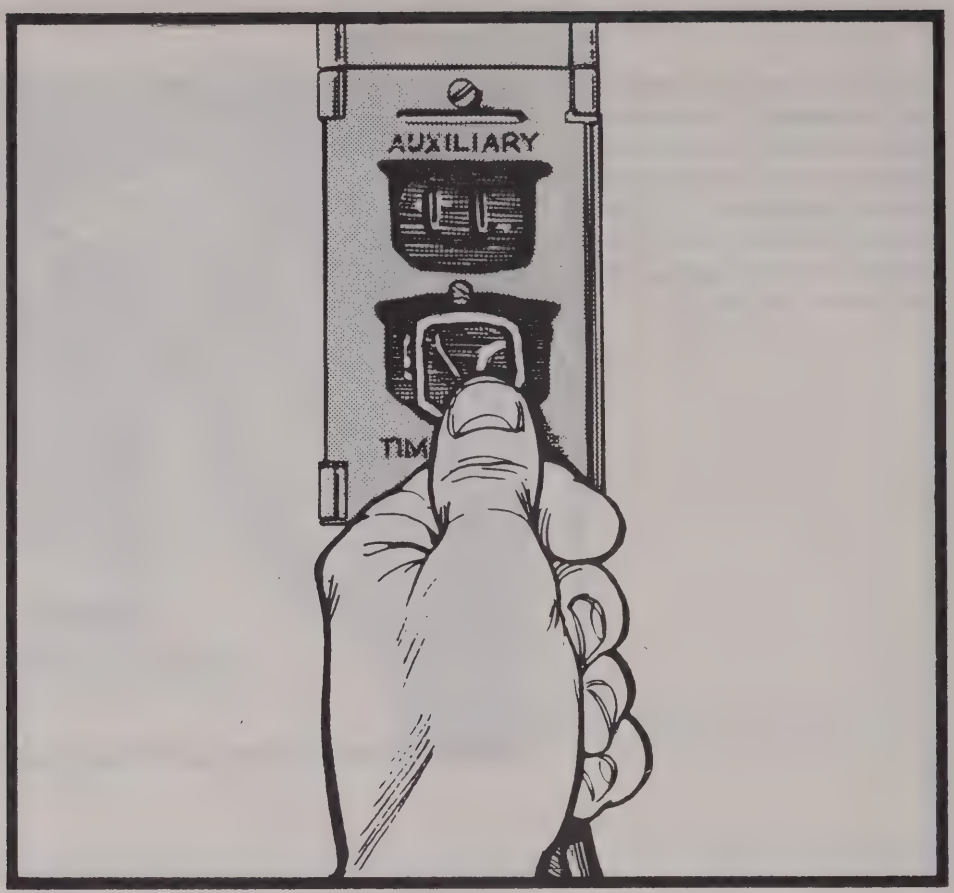
34

Next, make sure the power switch on the front of the KG-27 is in the OFF/RE-SET position and...



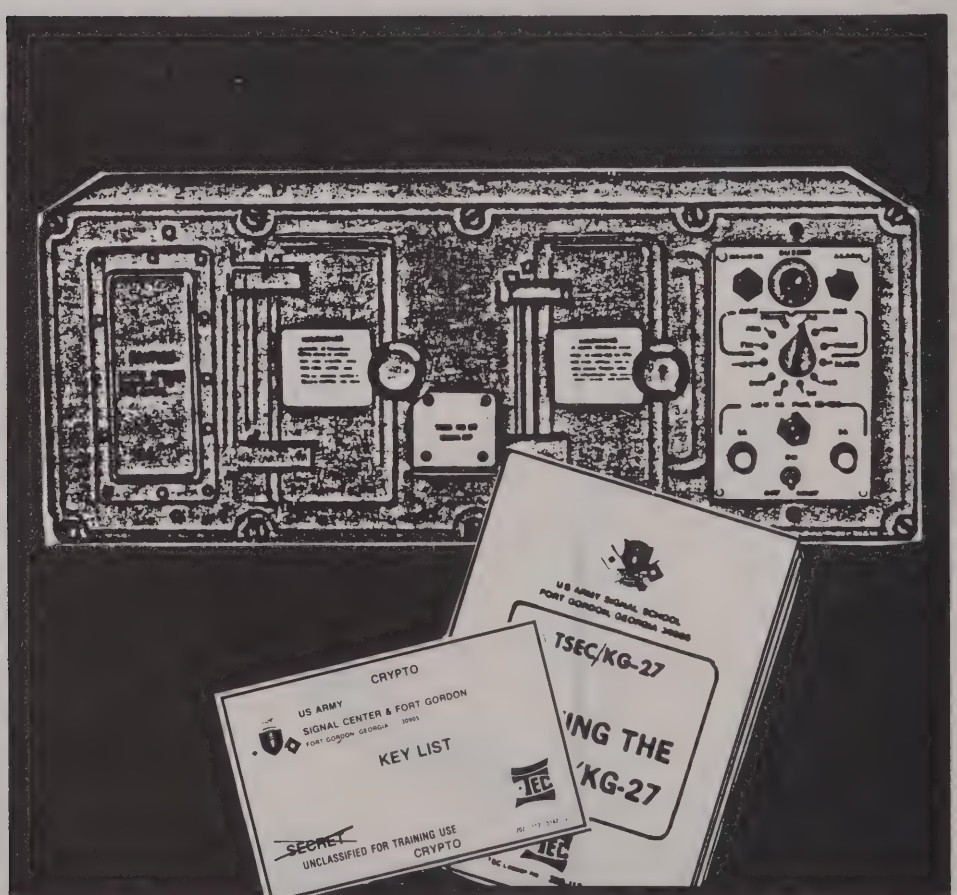
35

...then plug the KG-27 power cable into the ac receptacle at the side of the equipment rack.



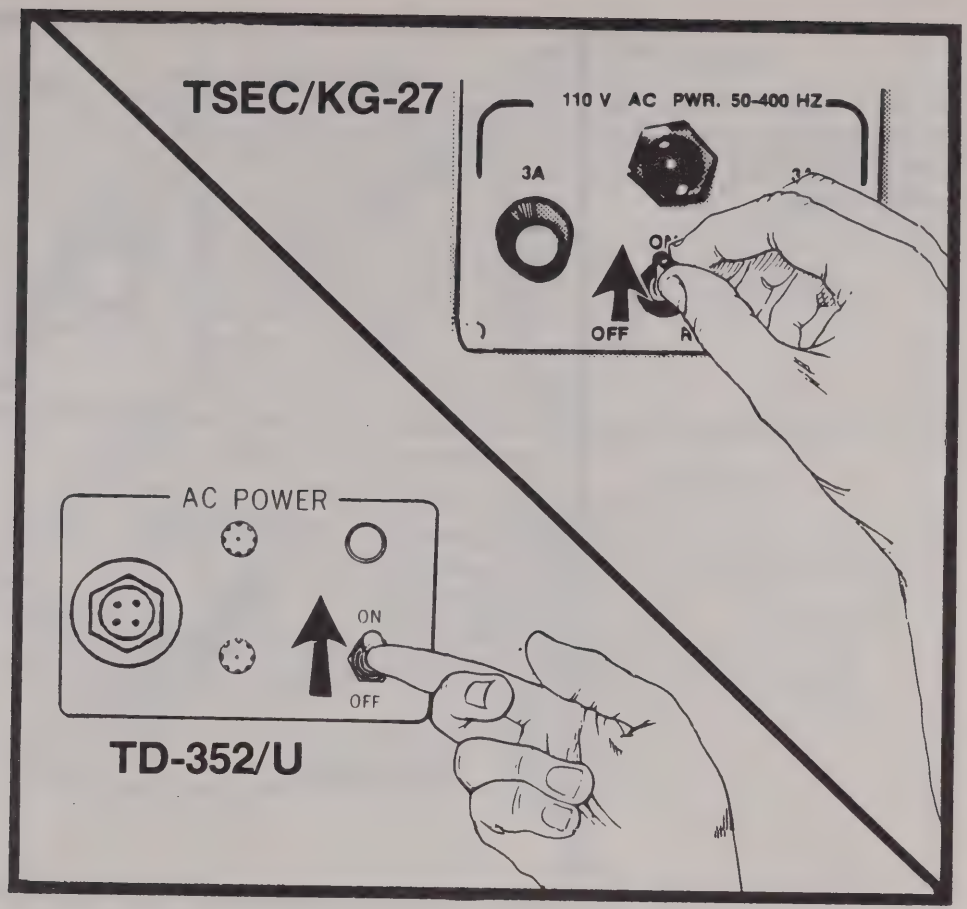
36

At this point, you must now key the TSEC/KG-27. Use TEC Lessons 202-113-5142-A and 202-113-5142-J to do this.



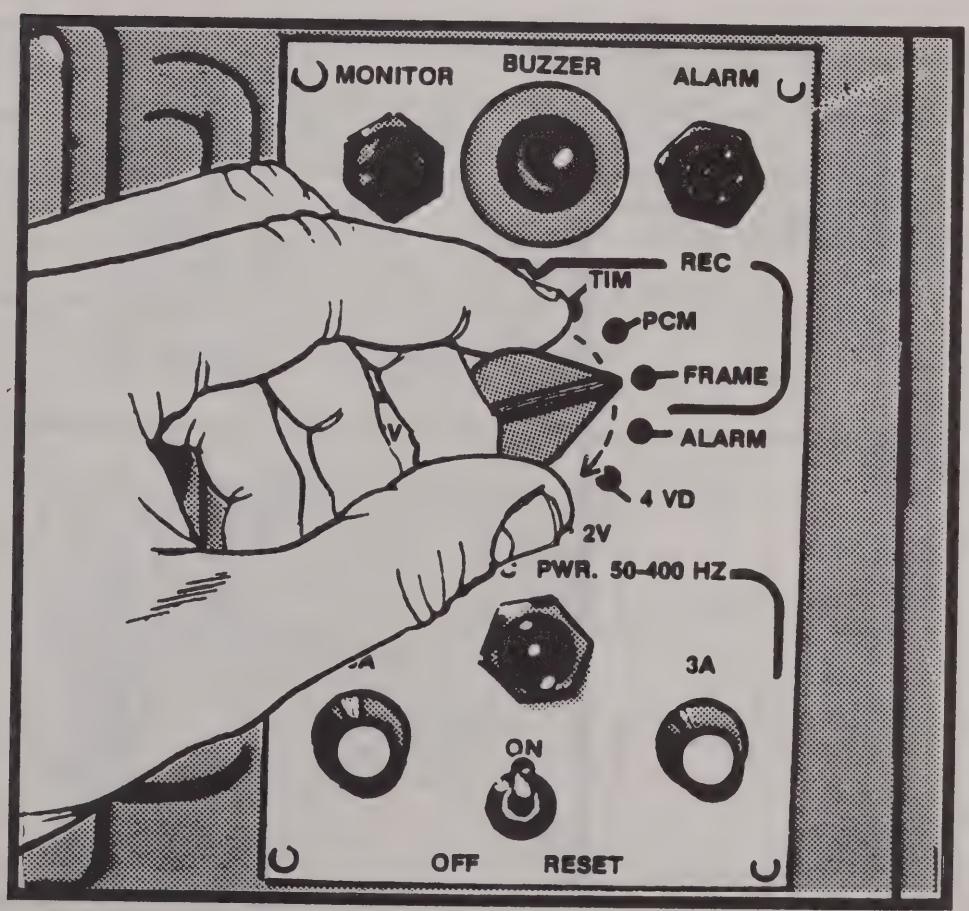
37

Now, place the power switches on the TD-352/U and the TSEC/KG-27 to the ON position.



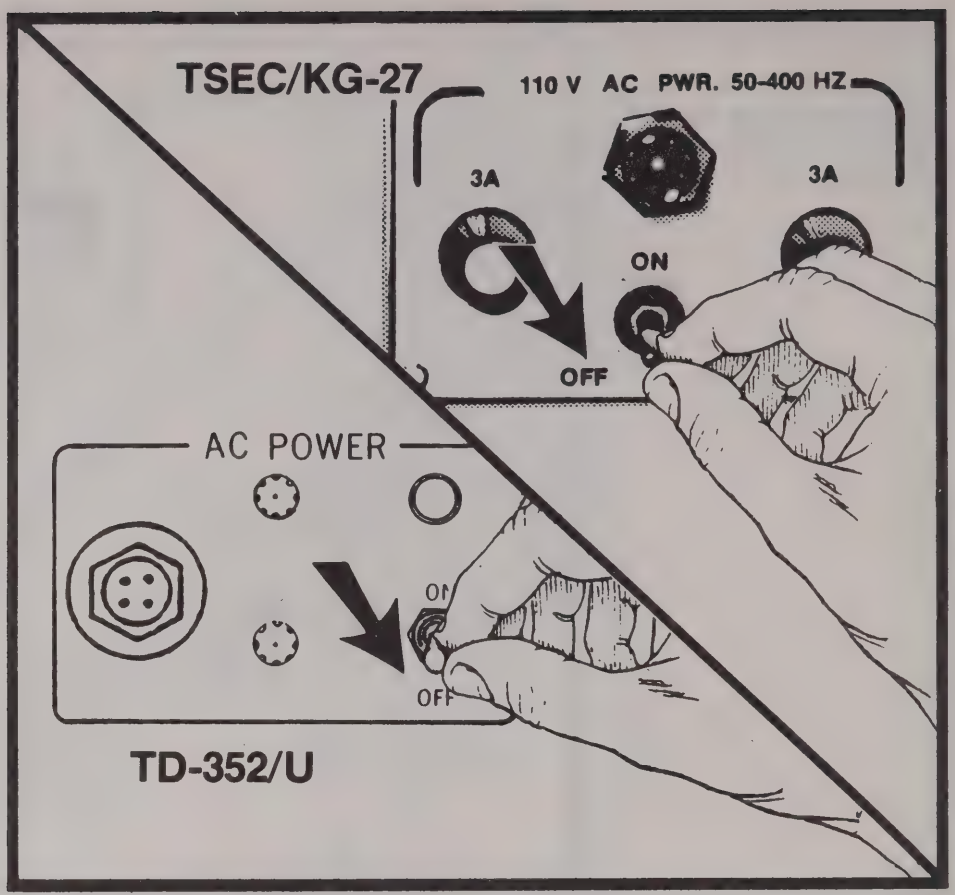
38

Rotate the TSEC/KG-27 monitor select switch to all positions. Ensure that the monitor lamp lights and no alarm condition exists, the TD-352 is in frame, and no visible or audible alarm condition exists.



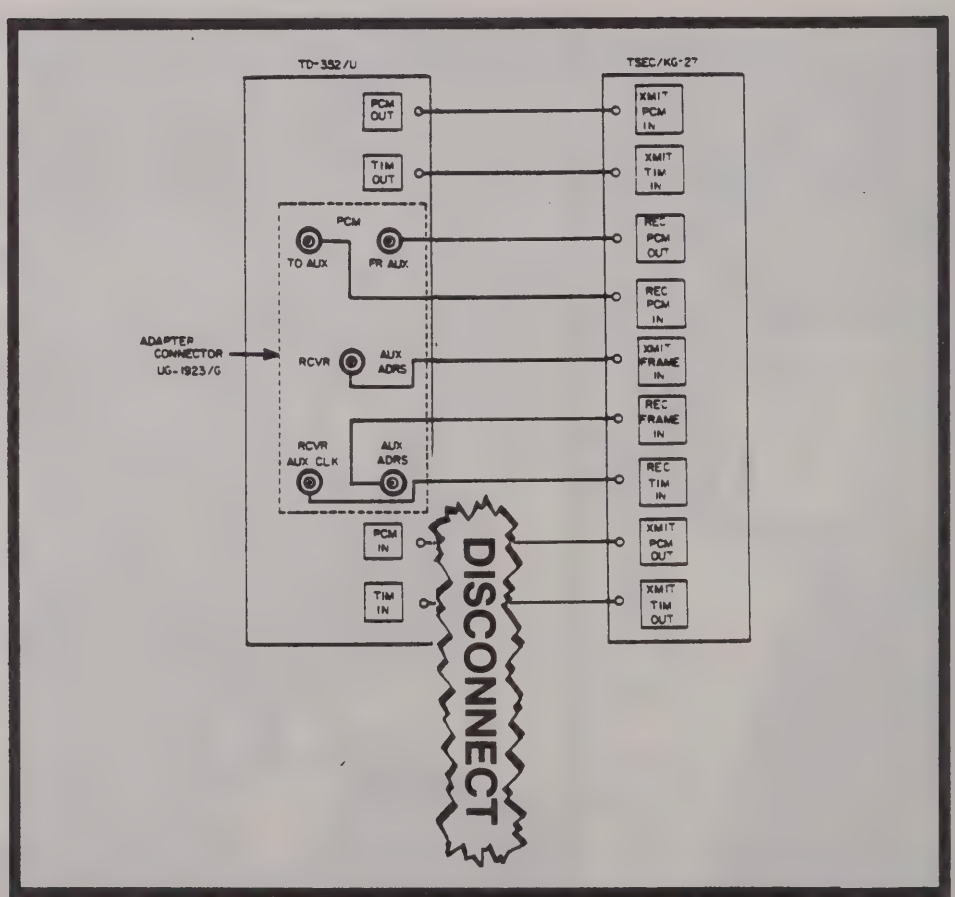
39

If the performance is satisfactory, place the power switches to the OFF position and...



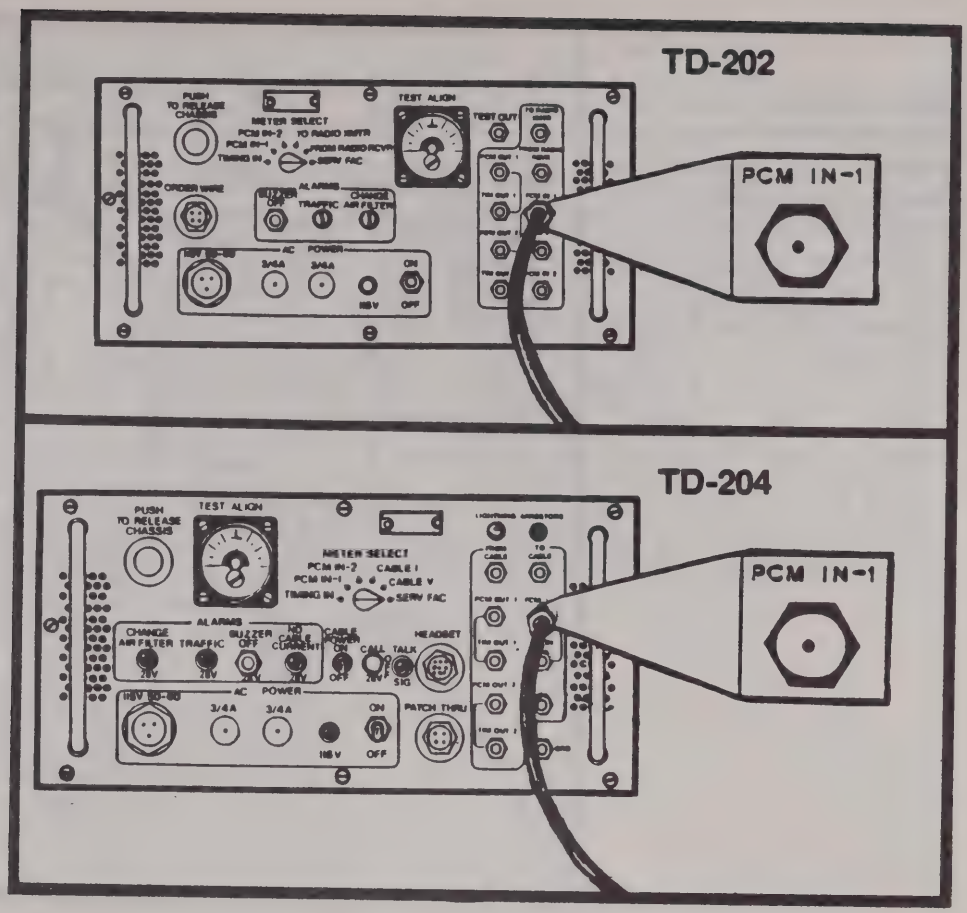
40

...disconnect the PCM IN and TIM IN cables at the TD-352/U only. Leave the other ends of these cables connected to the KG-27.



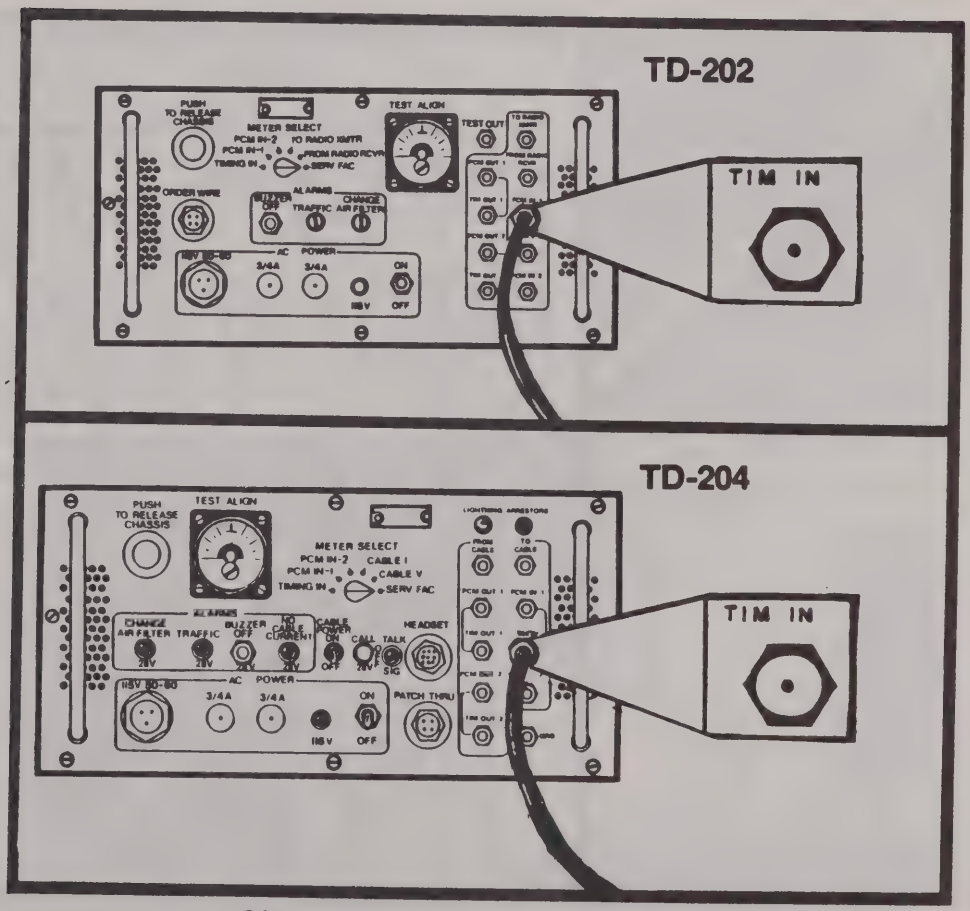
41

Connect the cable from the KG-27 XMIT PCM OUT to the TD-202 or TD-204 PCM IN 1.



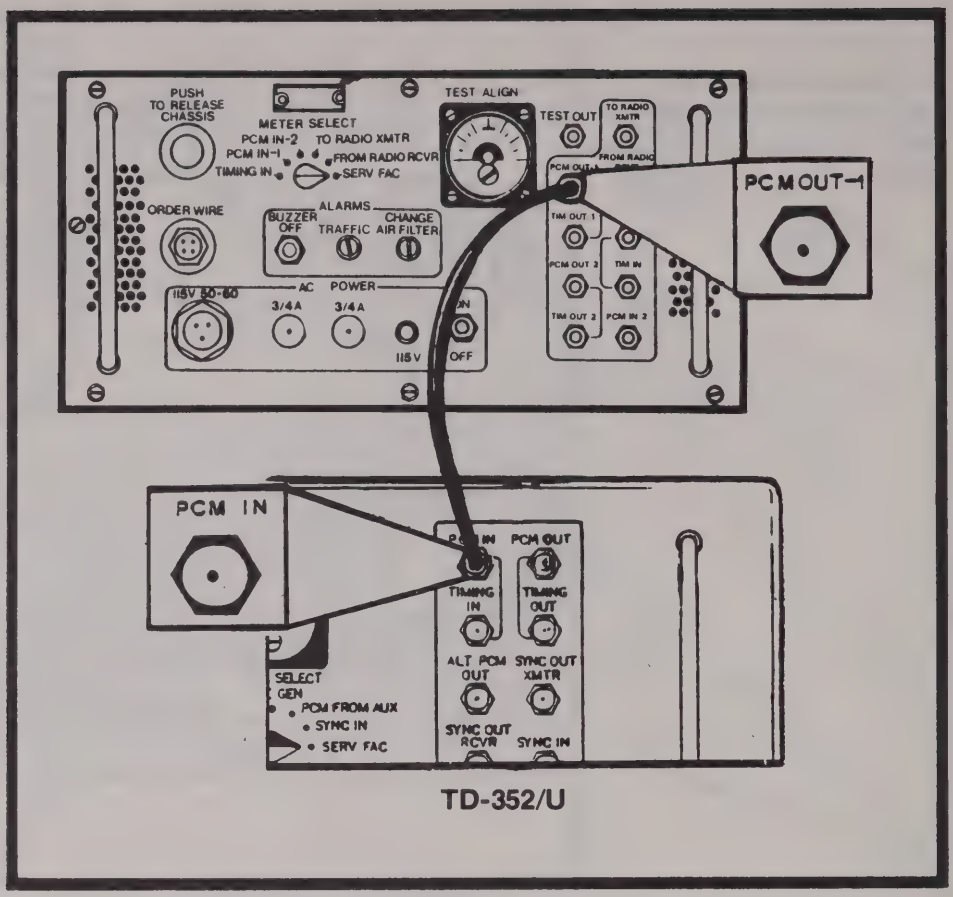
42

Then connect the cable from the KG-27 XMIT TIM OUT to the TD-202 or TD-204 TIM IN connector.



43

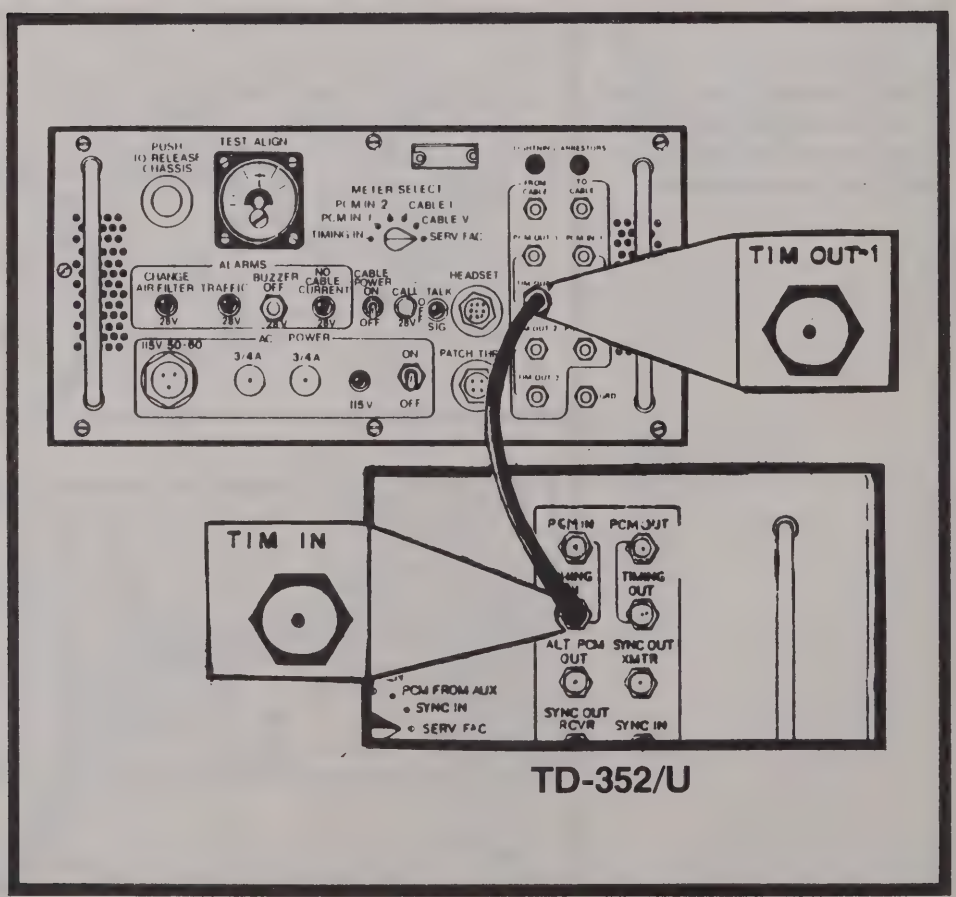
Now get two more CG-1040B/U cables from your storage area. Connect the end of one cable to the PCM IN connector on the TD-352 and the other end to the PCM OUT 1 connector on the TD-202 or TD-204.



TD-352/U

44

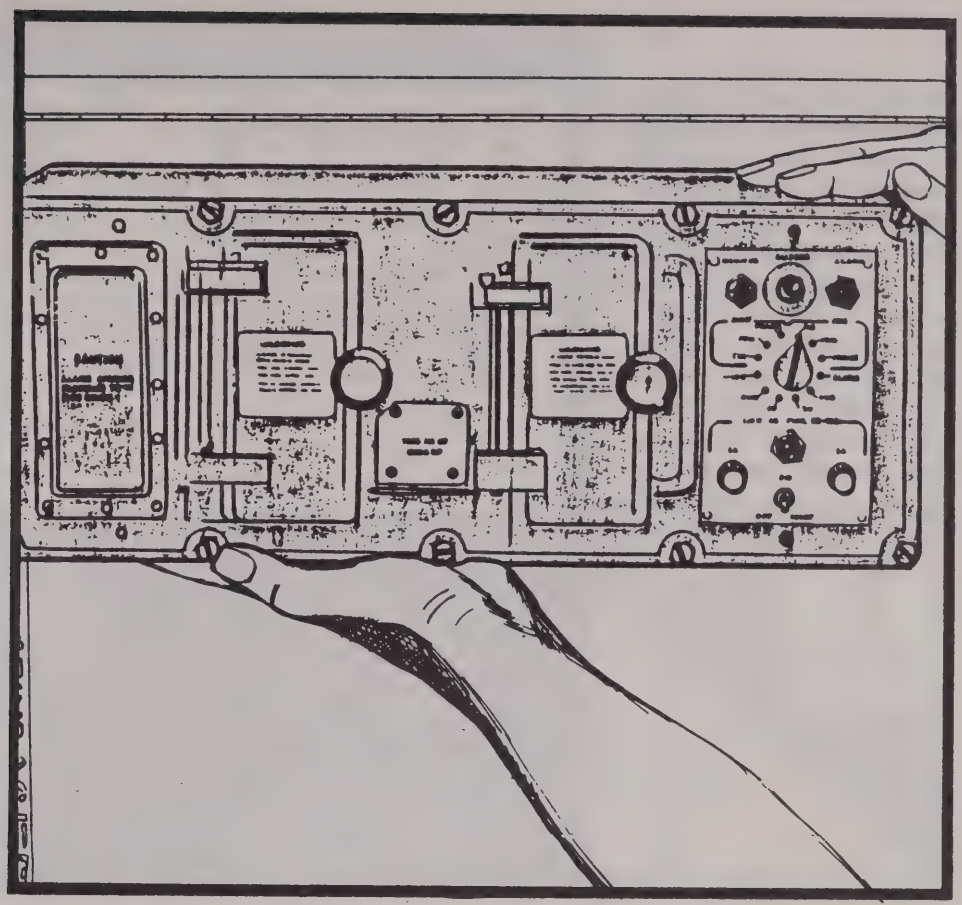
Take the other cable and connect one end to the TIM IN connector on the TD-352 and the other end to the TIME OUT 1 connector on the TD-202 or TD-204.



TD-352/U

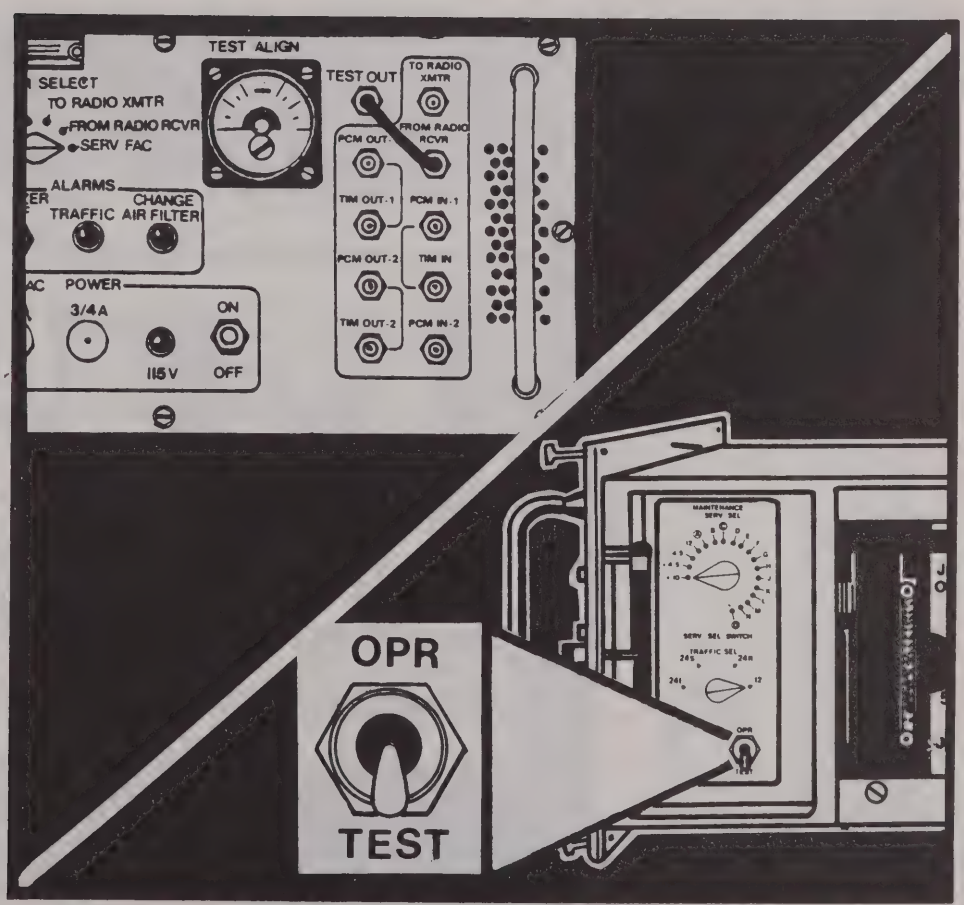
45

Now, slide the TSEC/KG-27 part way into its assigned space in the rack.



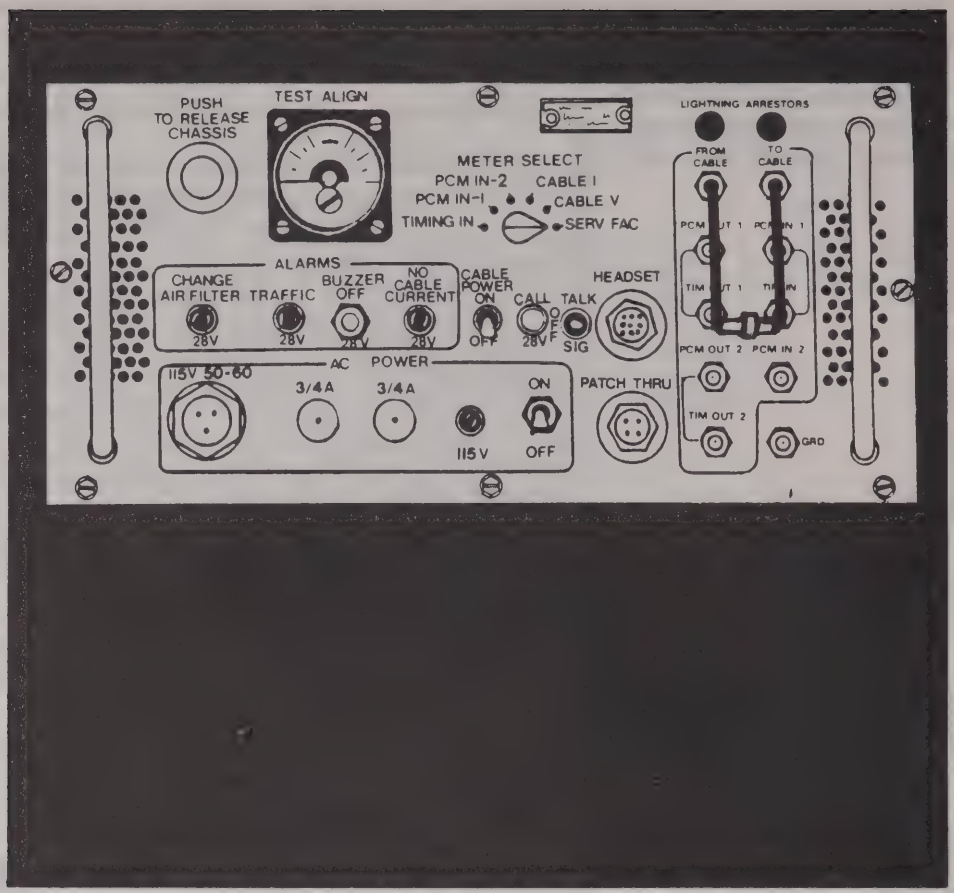
46

If you are operating as a radio terminal, you'll need to make the following connection for a loop-back test on the TD-202. Using a short CG-409 cable, connect one end to the FROM RADIO RCVR connector, and the other end to the TEST OUT connector on the TD-202. Place the OPR TEST switch to the TEST position.



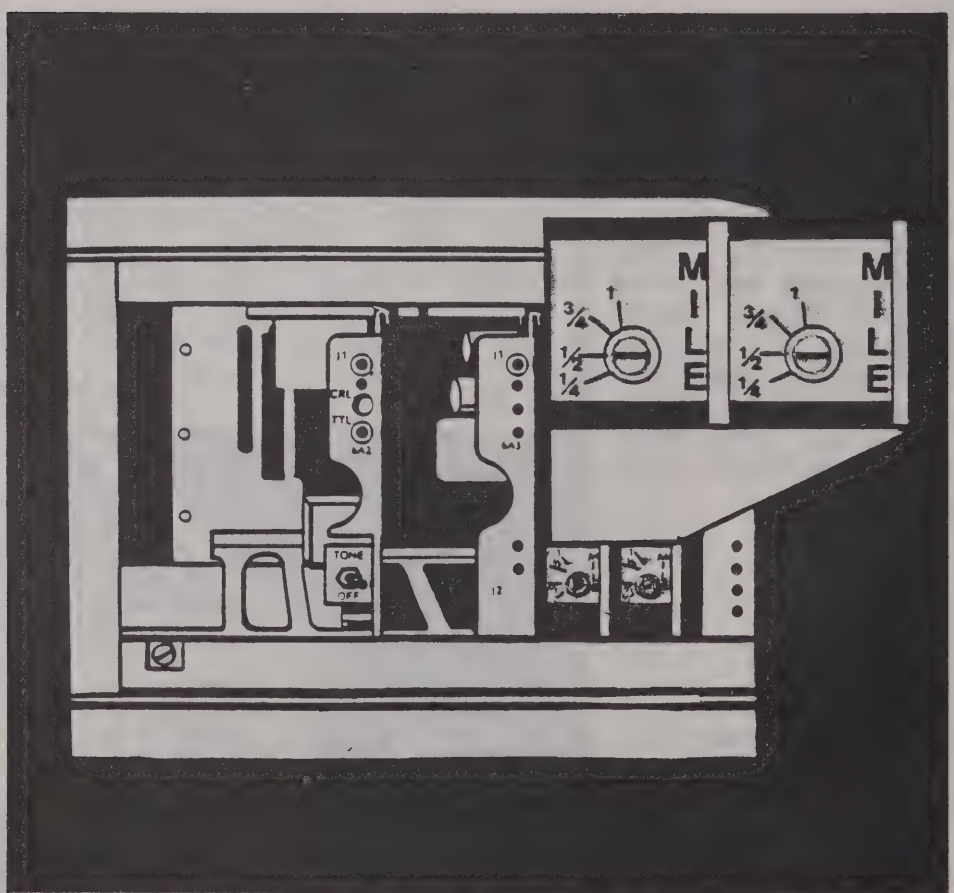
47

If you are operating as a cable terminal, you'll need to make the following connection for a loop-back test on the TD-204. Using the LOOPBACK CABLE, connect the CG-2437 end to the TO CABLE connector on the TD-204. Connect the CG-2438 end of the LOOPBACK CABLE to the FROM CABLE connector. Now connect the free end of these two loopback cables together.



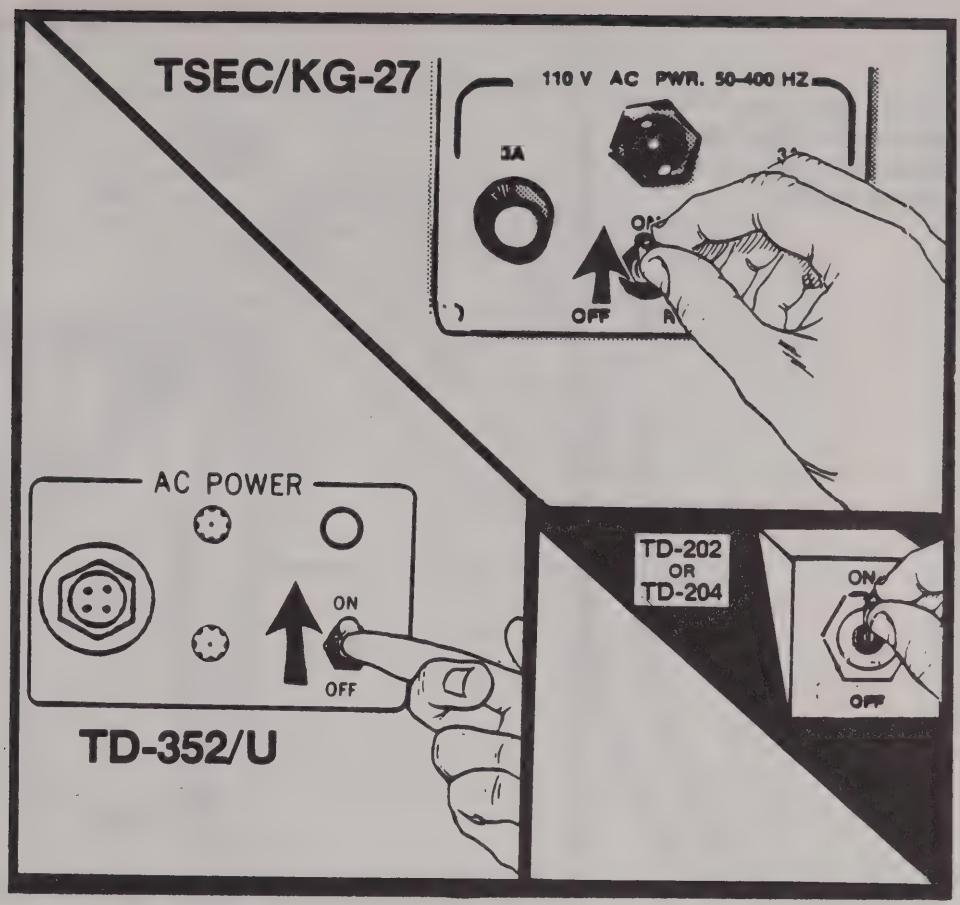
48

Turn the TD-204 MILE switches on the 6A4 and 6A5 panels to the 1/2 mile position. NOTE: Reference TM 11-5895-366-14-2, paragraph 2-15, e. (3) (f), page 2-59.



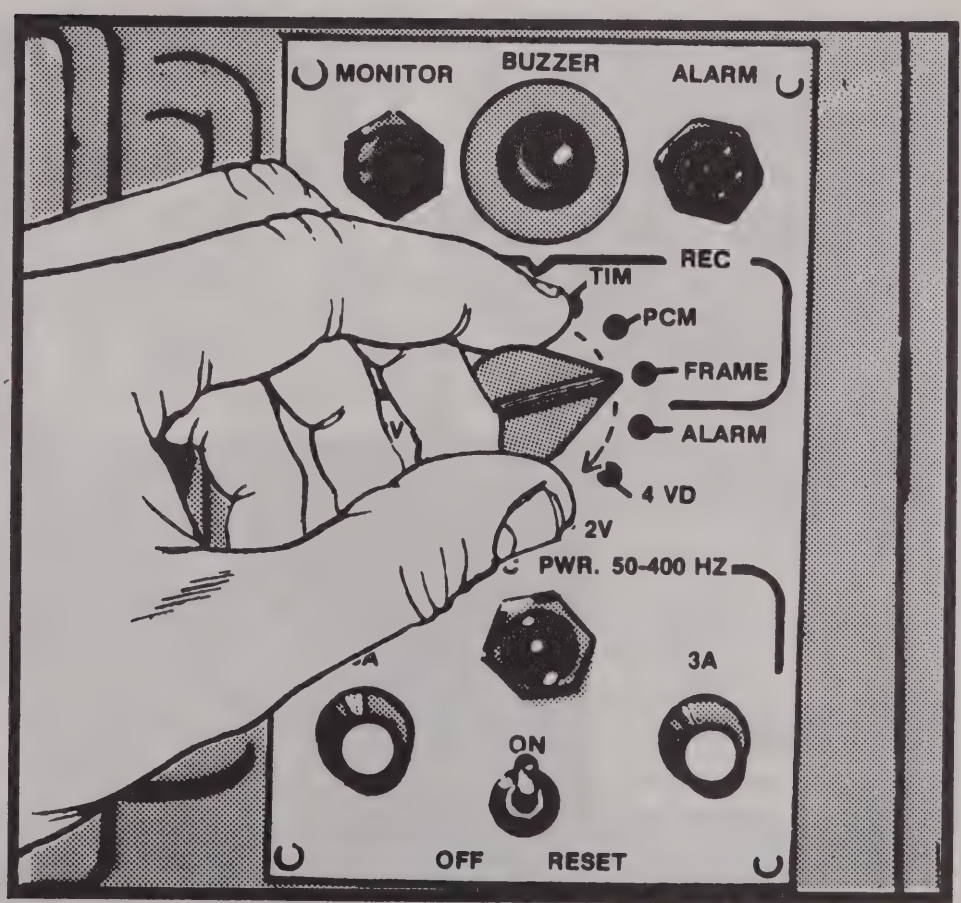
49

Now turn on the POWER switches on the KG-27, the TD-352 and the TD-202 or TD-204.



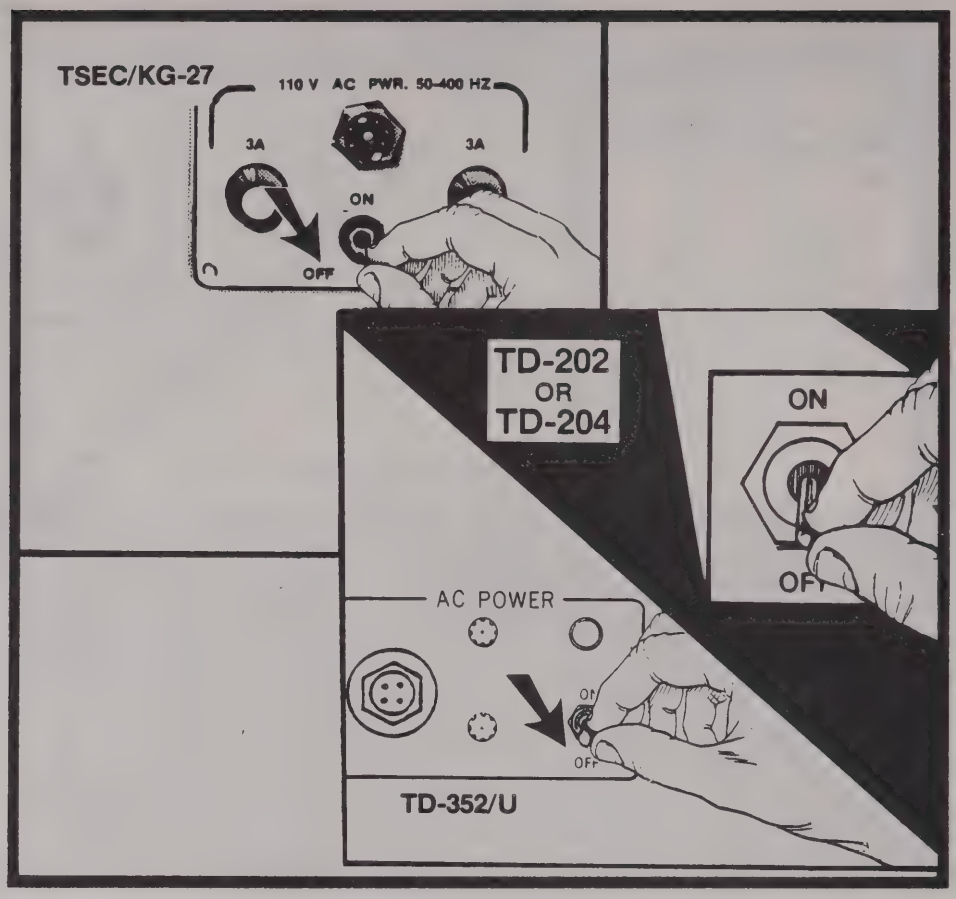
50

Next, perform the Monitor Select Switch check to make sure all three pieces of equipment are working. Rotate the TSEC/KG-27 Monitor Select Switch to all positions. Ensure that the Monitor Lamp lights and no alarm condition exists, the multiplexers frame and no visible or audible alarm condition exists.



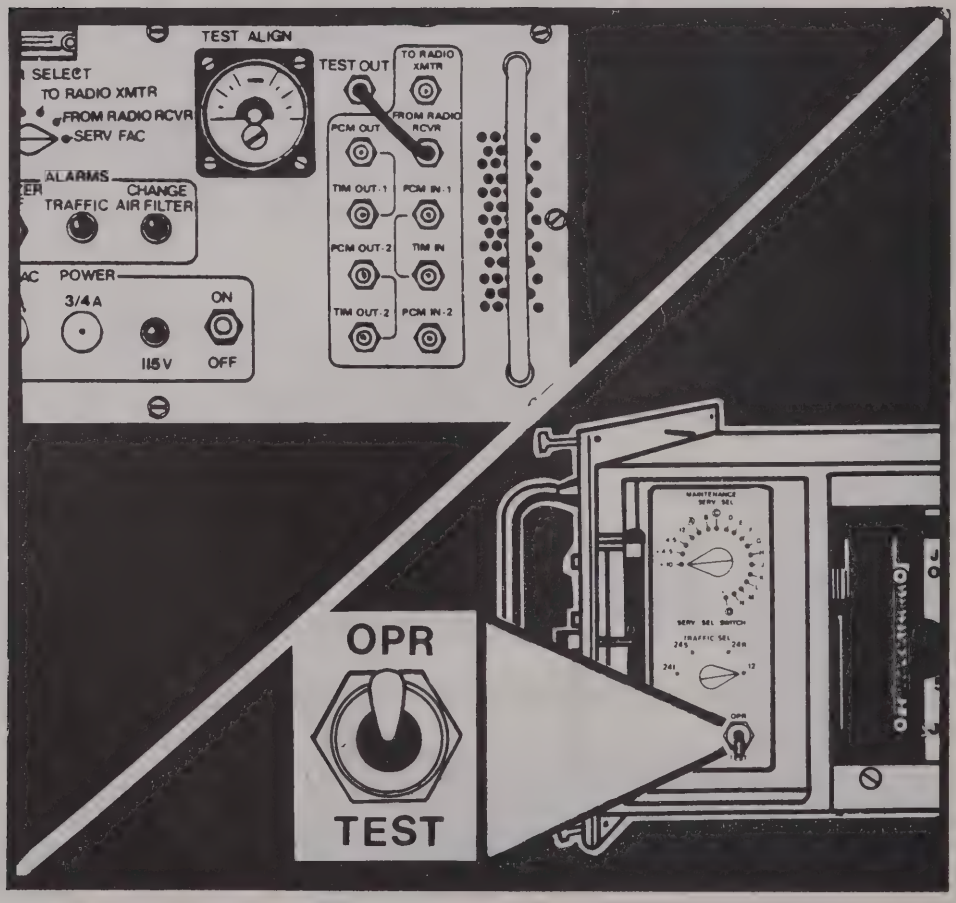
51

Turn off the POWER switches on the TSEC/KG-27, the TD-352, and the TD-202 or TD-204.



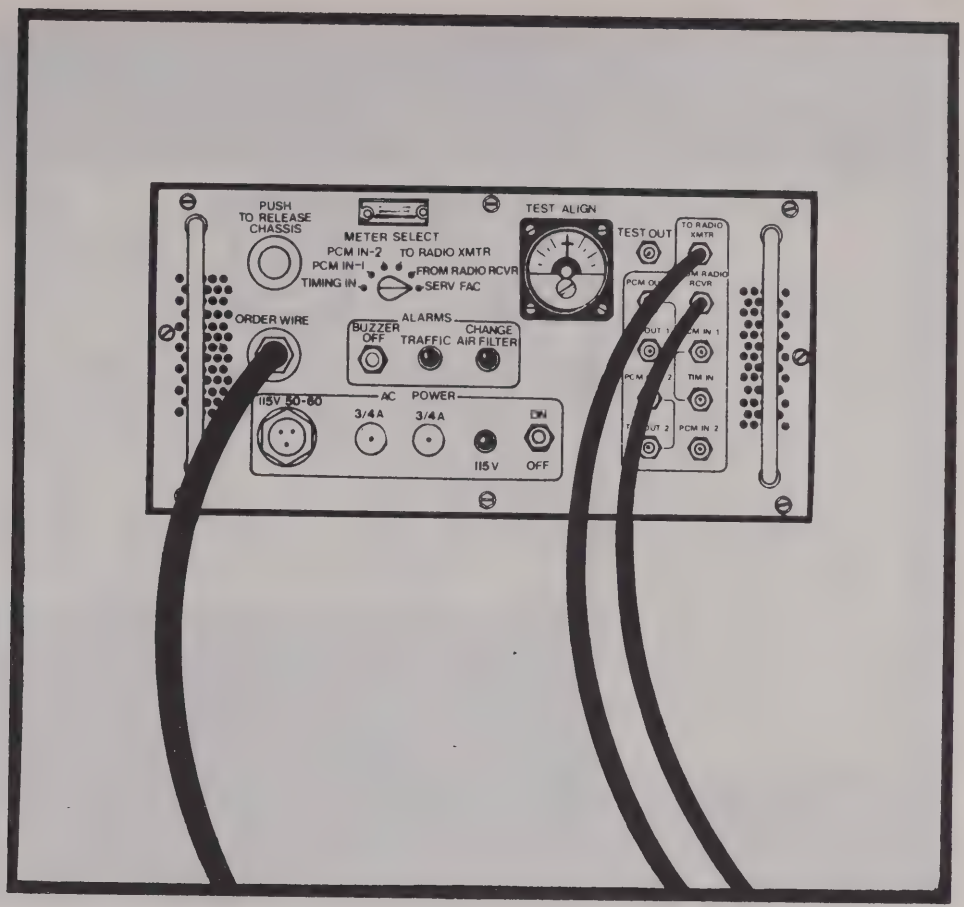
52

If you are operating as a radio terminal, remove the TD-202/U LOOPBACK CABLE and place the OPR TEST switch to OPR.



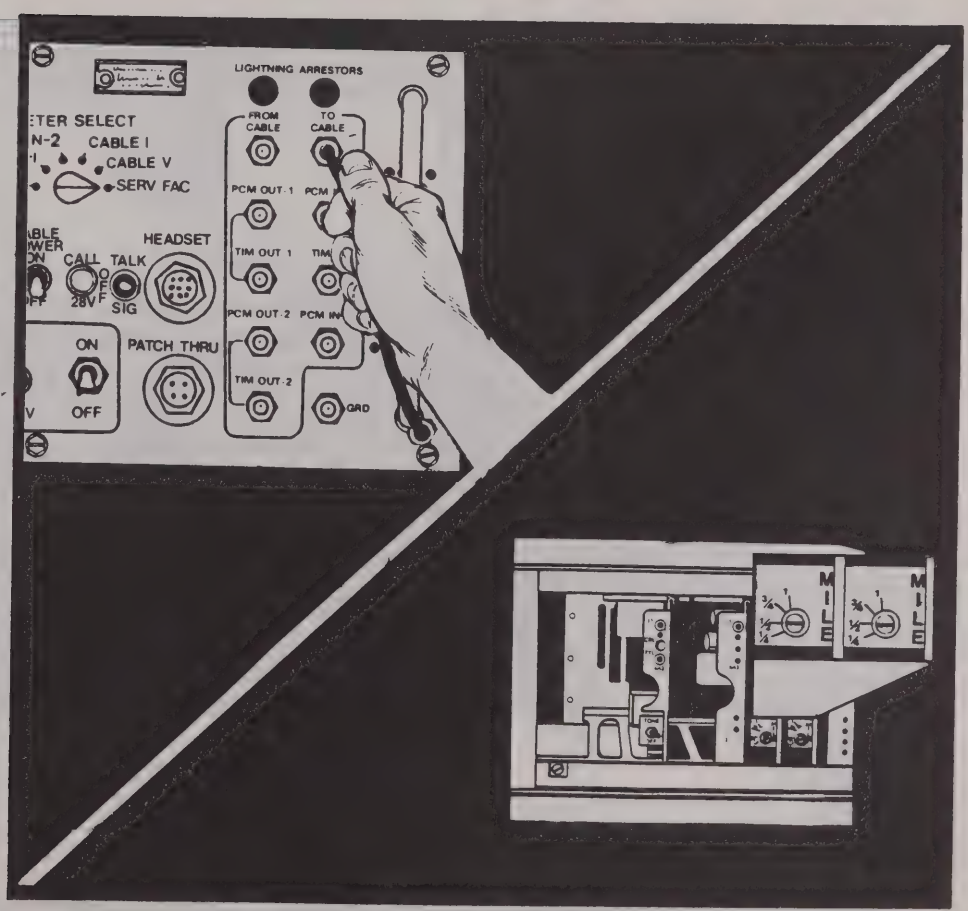
53

Then connect the cables required for radio terminal operation.



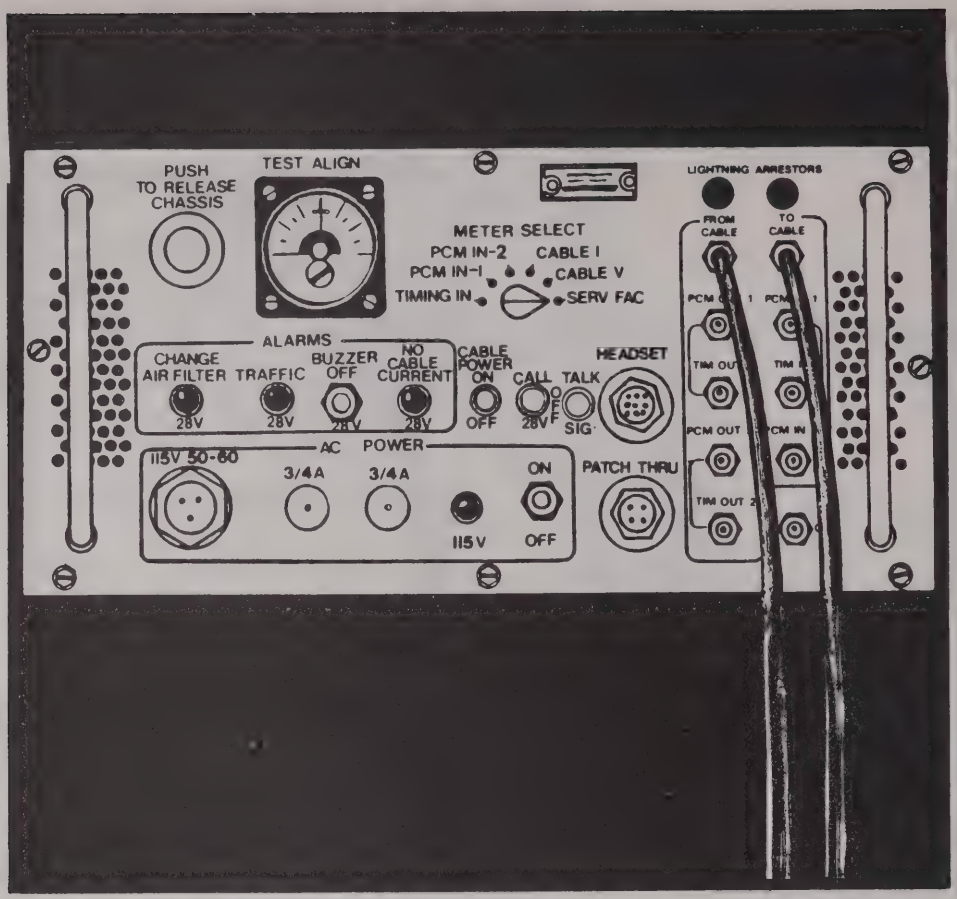
54

If you are operating as a cable terminal, remove the TD-204/U LOOPBACK CABLE and operate the MILE switches on panels 6A4 and 6A5 to the position corresponding to the distance to the first TD-206/G in your transmission cable.



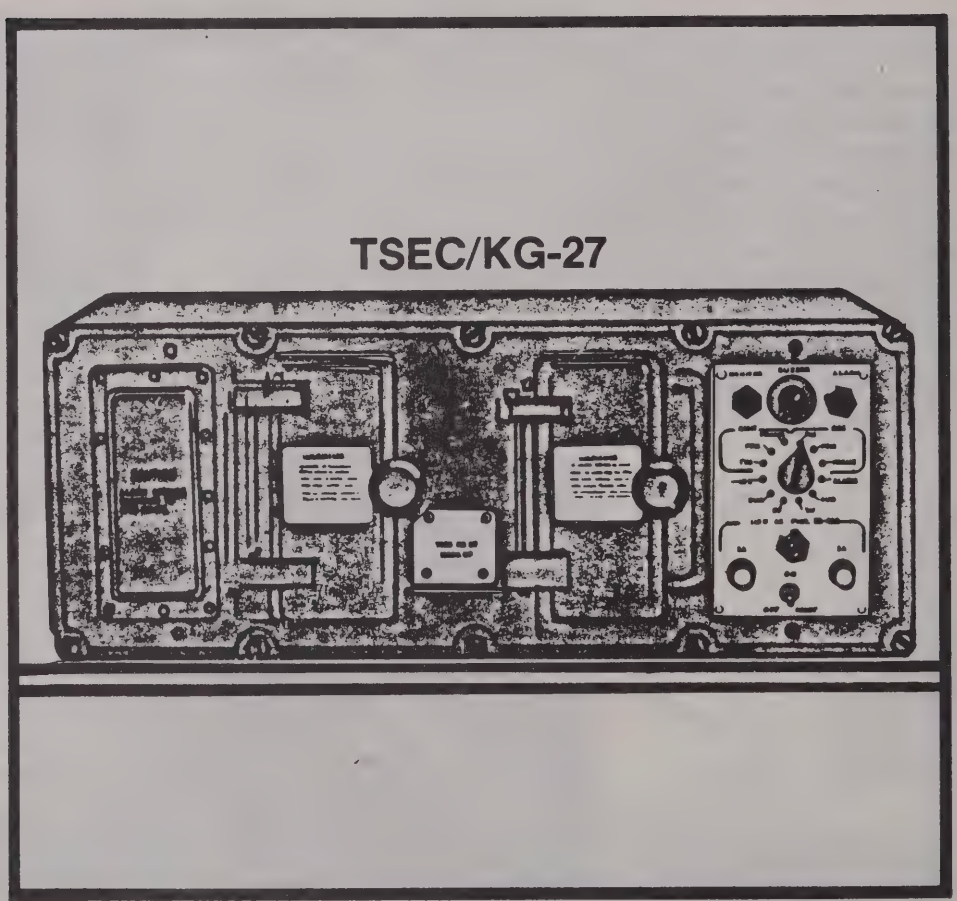
55

Then connect the cables required for cable terminal operation.



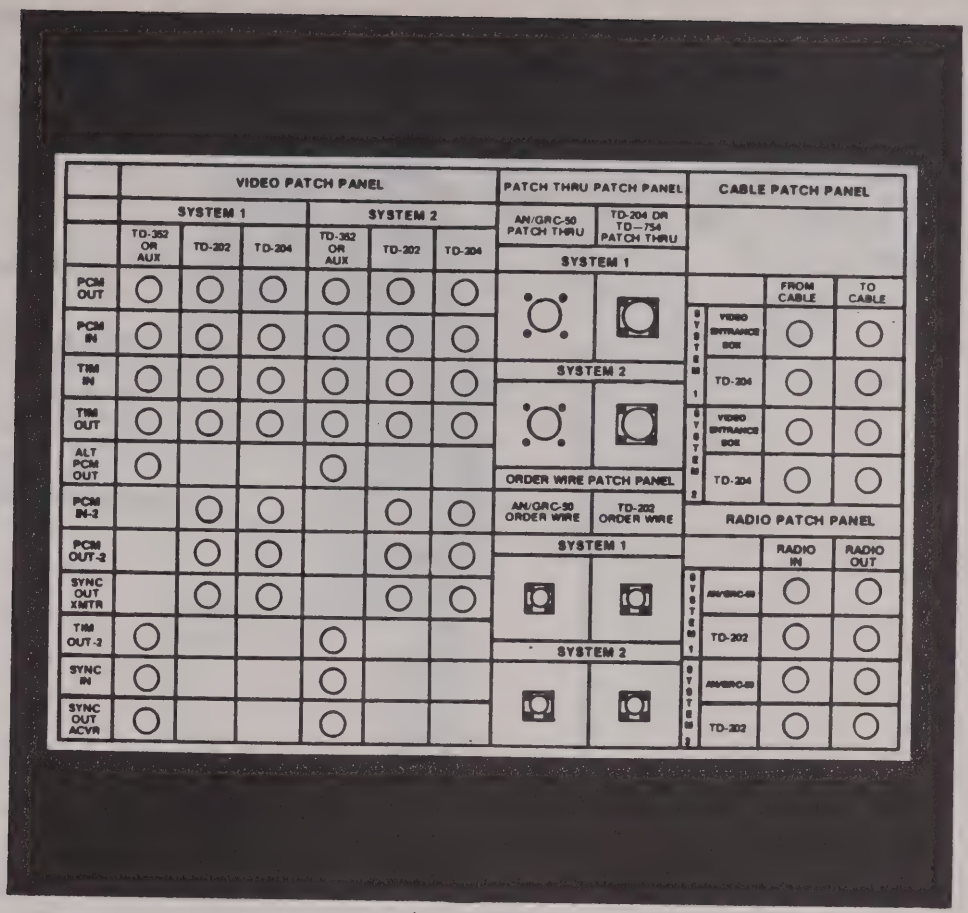
56

This completes the installation and cabling of the TSEC/KG-27 in an AN/TRC-117 without a patch panel. If you feel the need for more practice, go back and repeat Frames 1 through 55; if not, take the Posttest.



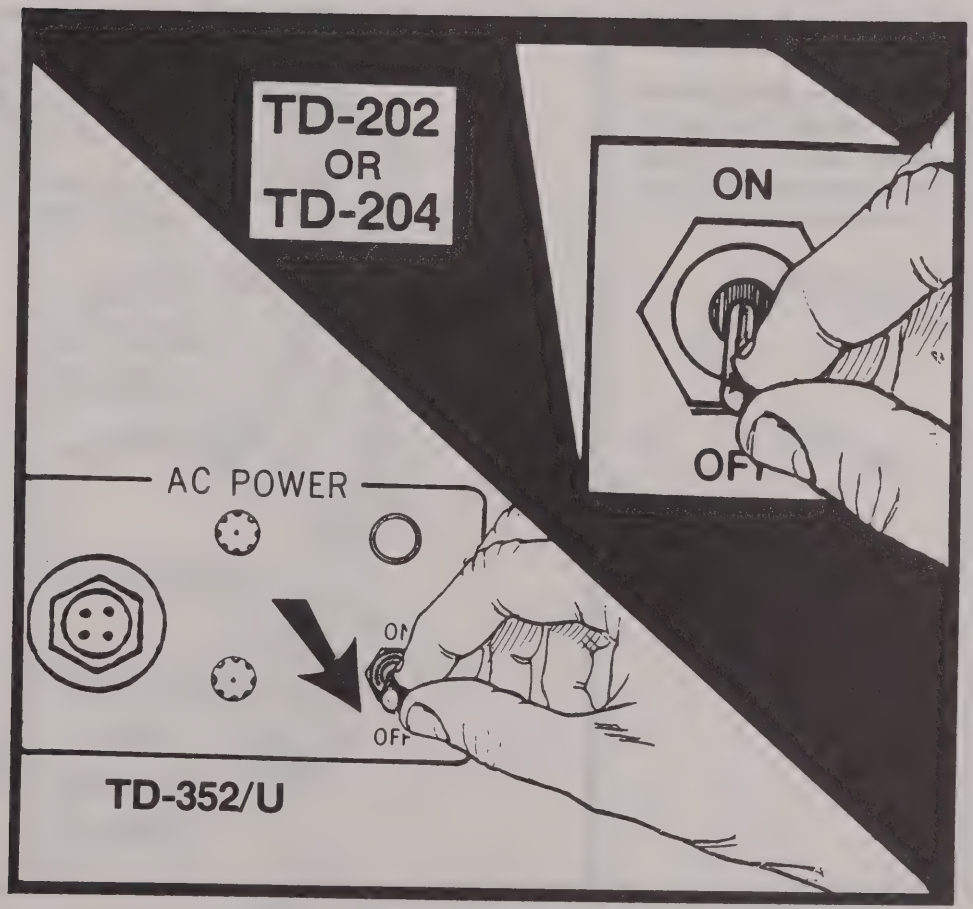
57

The final task of this lesson will be to install the TSEC/KG-27 into System 1 of an AN/TRC-117 with a patch panel.



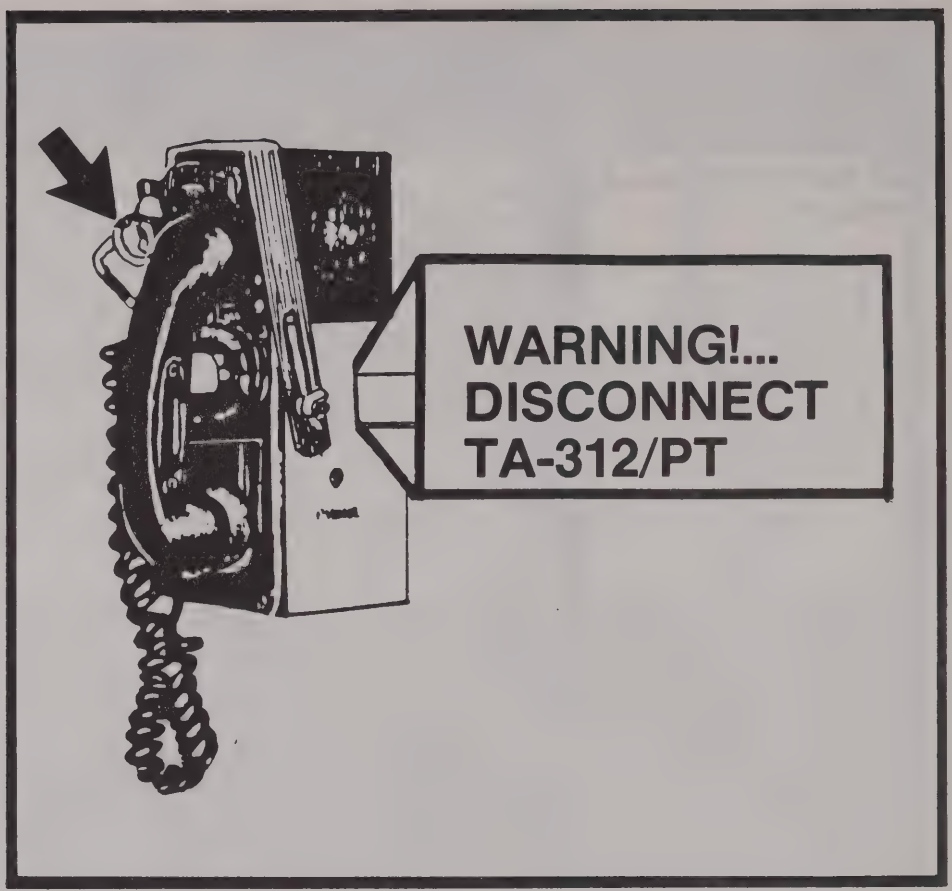
58

Before you begin, make sure the power switches are OFF on the TD-202, TD-204, and TD-352.



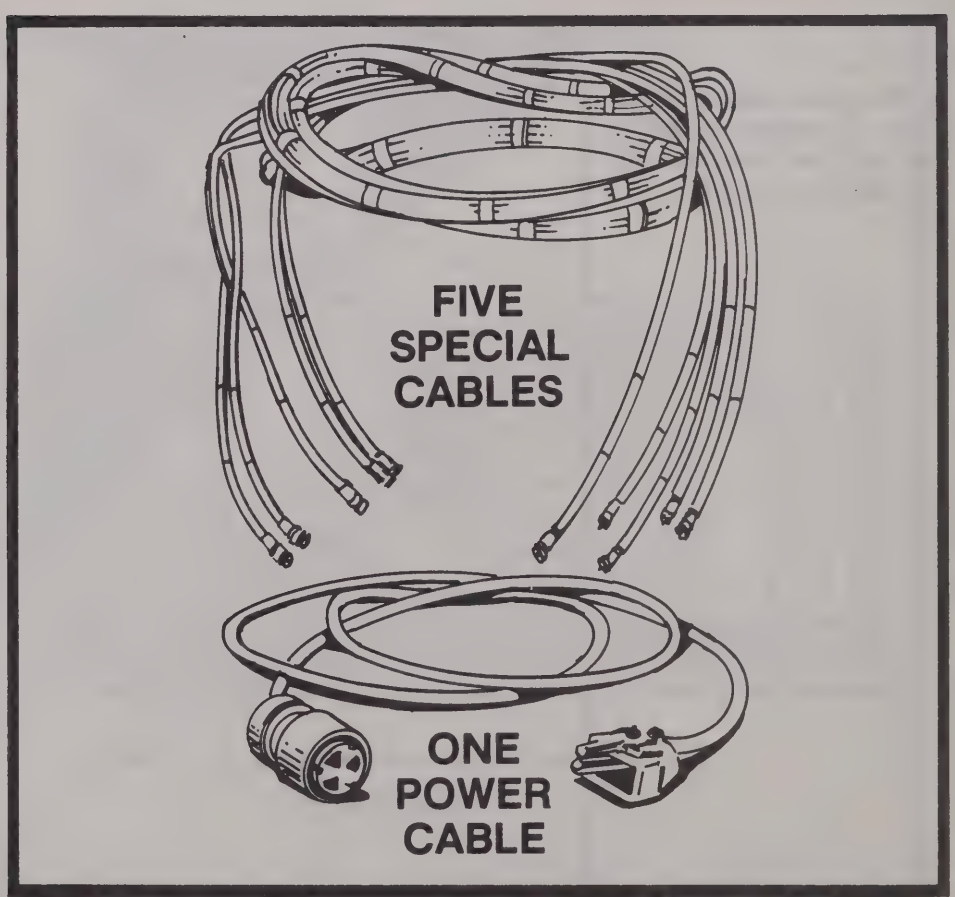
59

To prevent a TEMPEST hazard while performing these procedures, you must disconnect your TELEPHONE SET TA-312/PT.



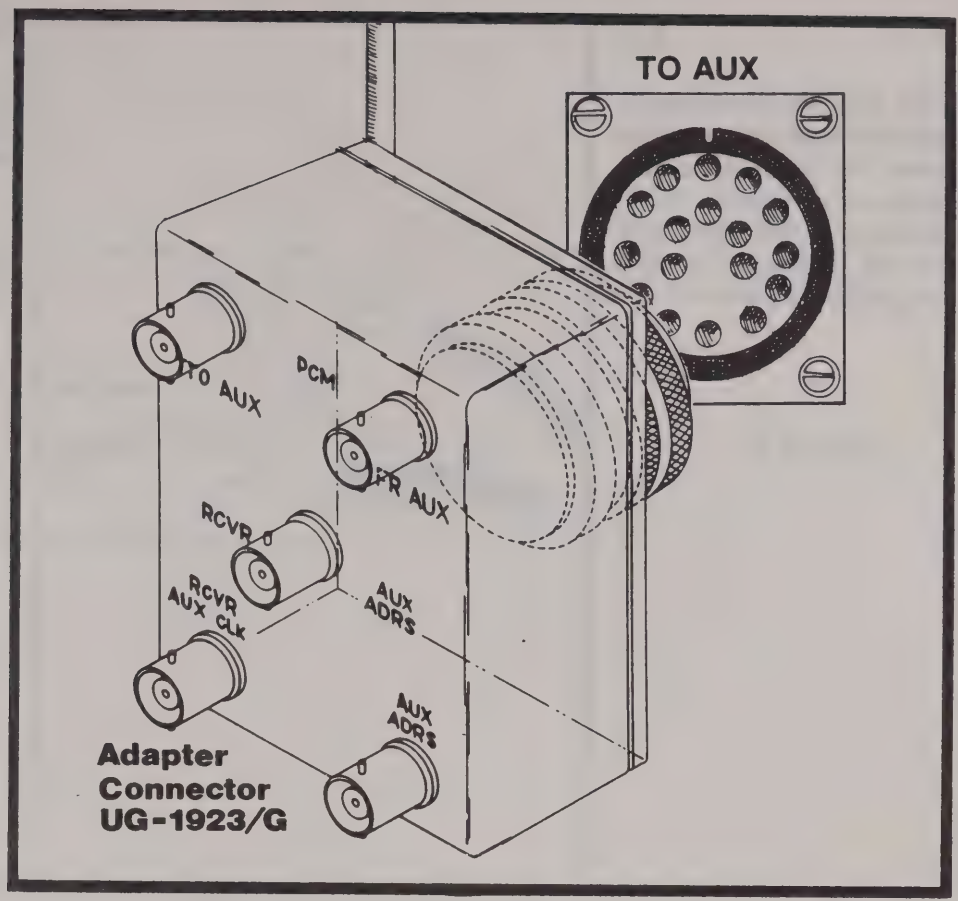
60

When this is done, remove the six cables (five special cables and one power cable) from the TSEC/KG-27 installation kit.



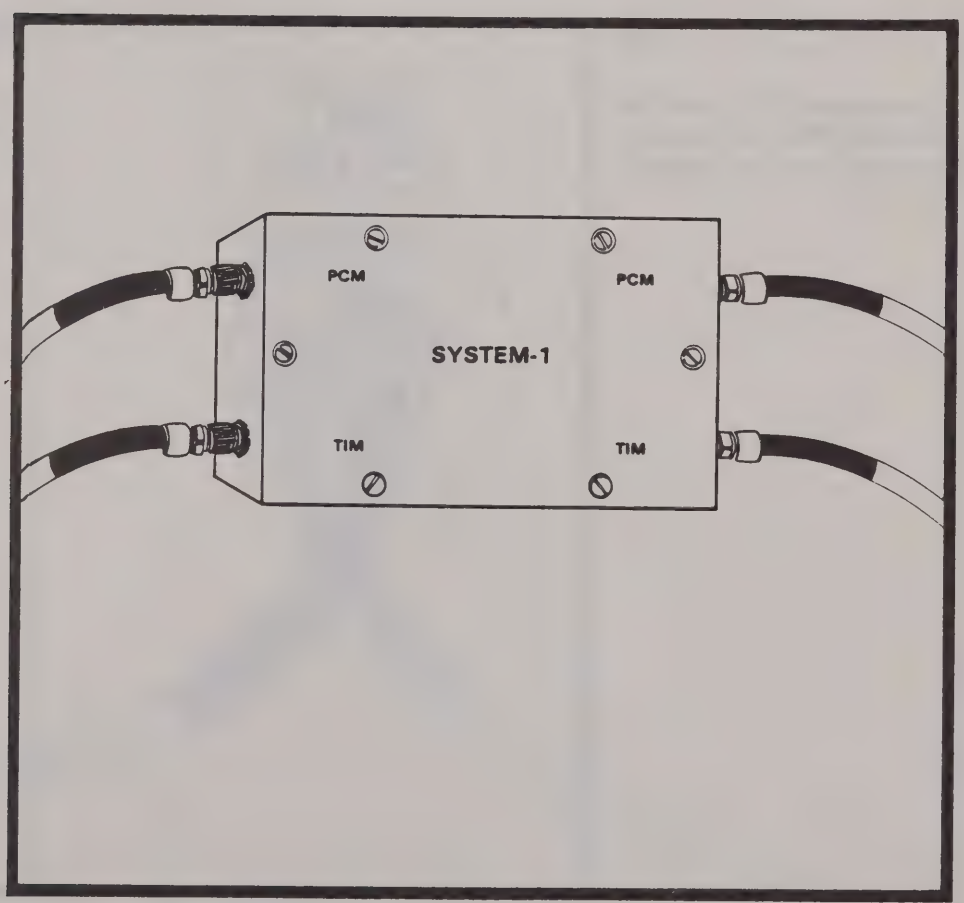
61

Connect the Adaptor Connector UG-1923/G to the TD-352 TO AUX connector (located on the left front corner of the TD-352).



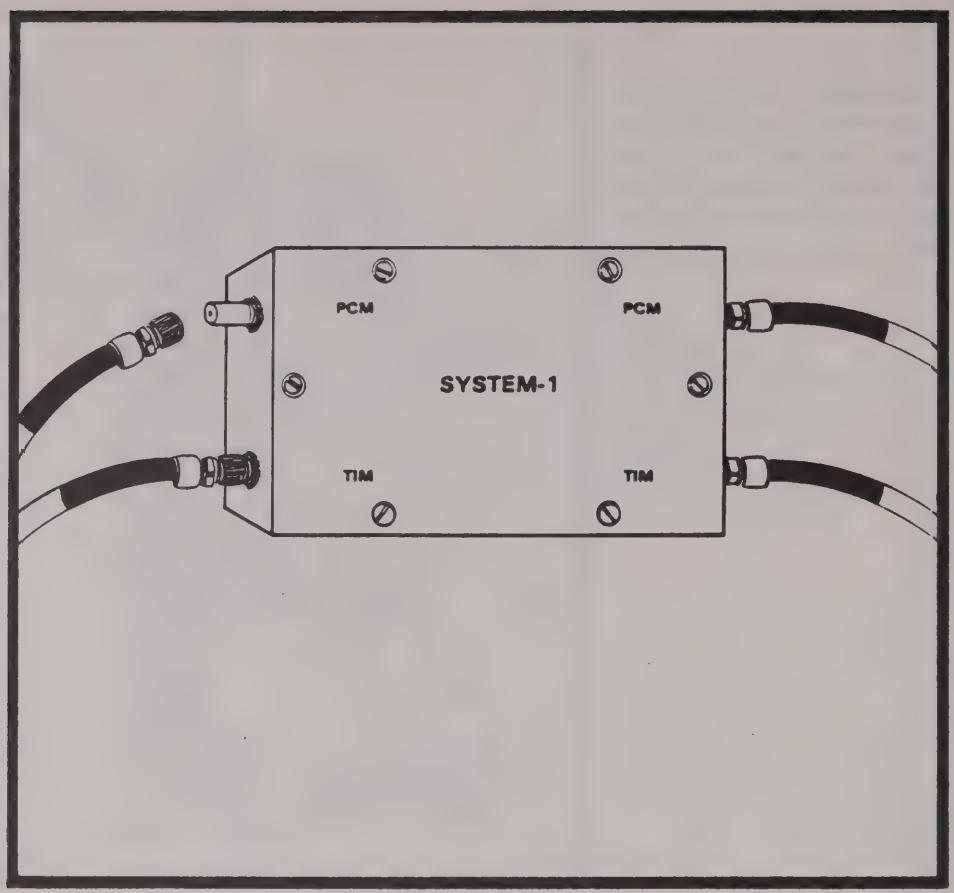
62

Now, you must make some cable connections. Look at the rear of the equipment rack. Do you see a small box with four cables connected to it?



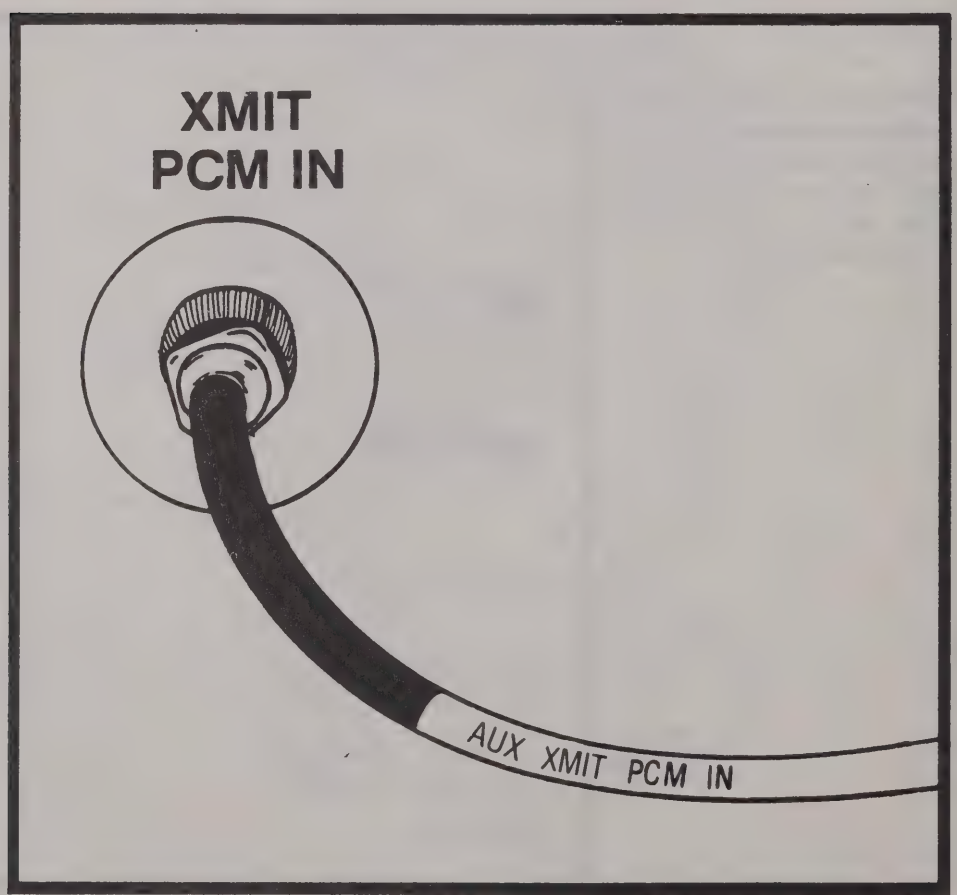
63

This is a Secure-Bypass box and you are going to have to change some cables at this point. First, disconnect the top cable on the left side of the Secure-Bypass box and . . .



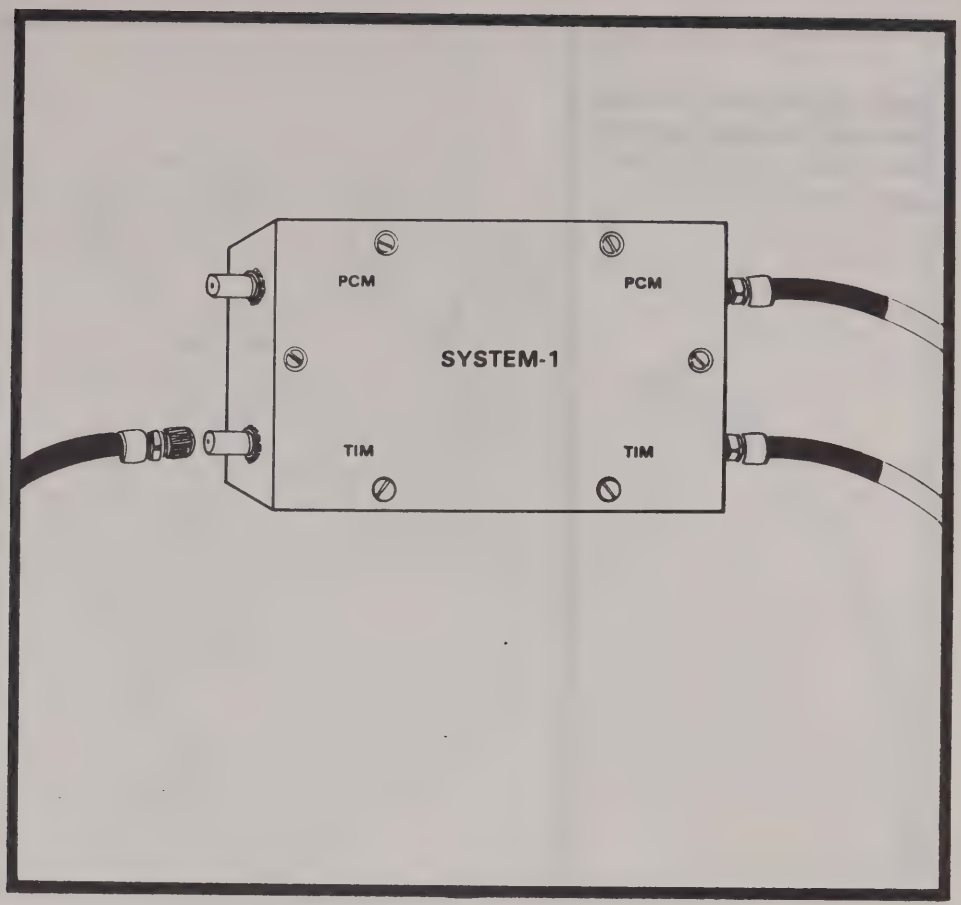
64

. . . reconnect this cable to the XMIT PCM IN connector on the rear of your KG-27.



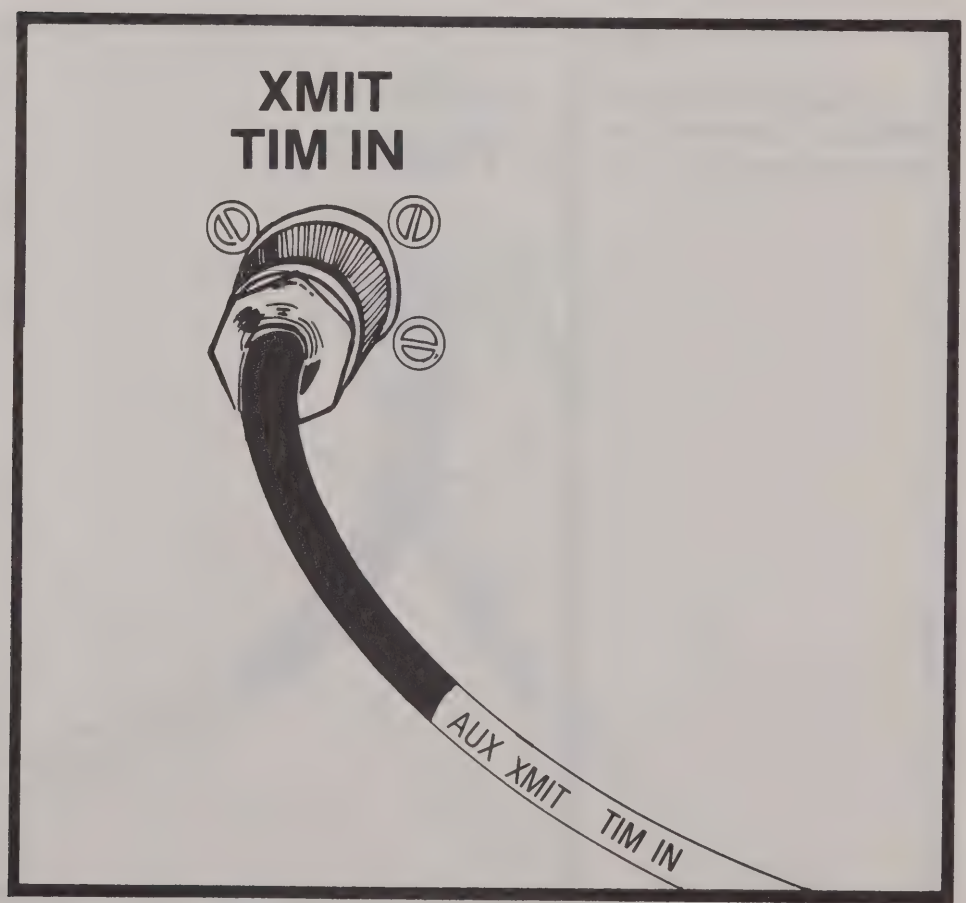
65

Next, disconnect the bottom cable on the left side of the Secure-Bypass box and . . .



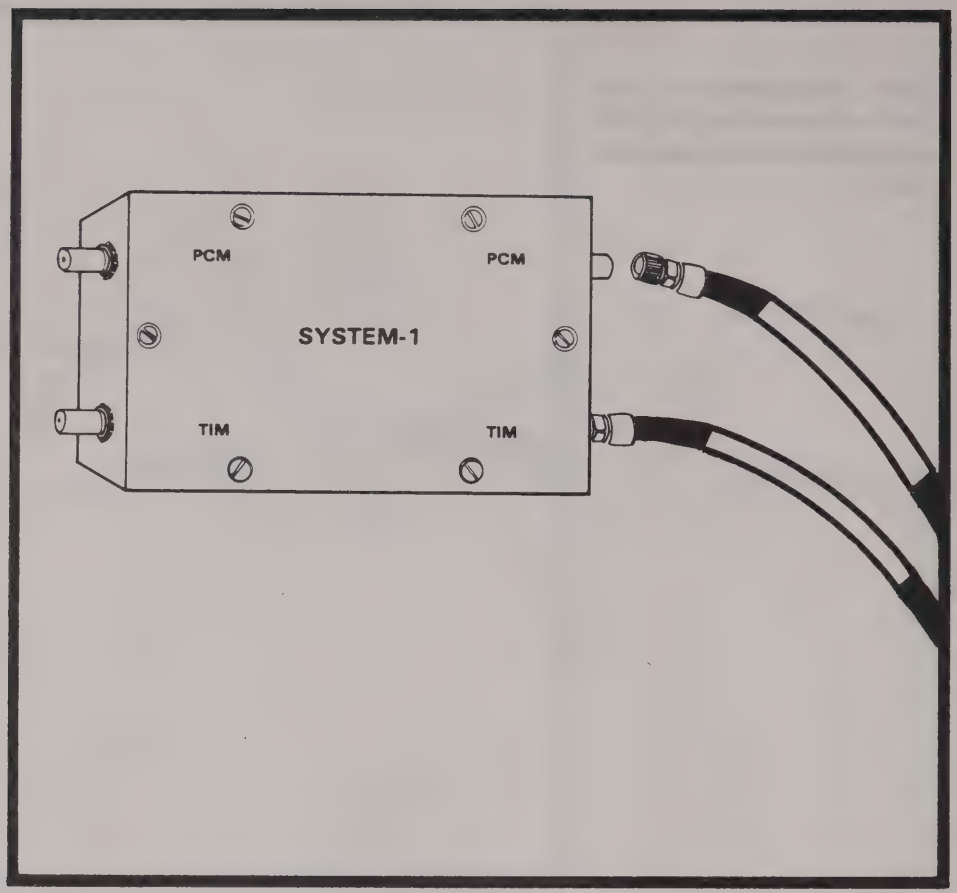
66

. . . reconnect it to the XMIT TIM IN connector on the rear of the KG-27.



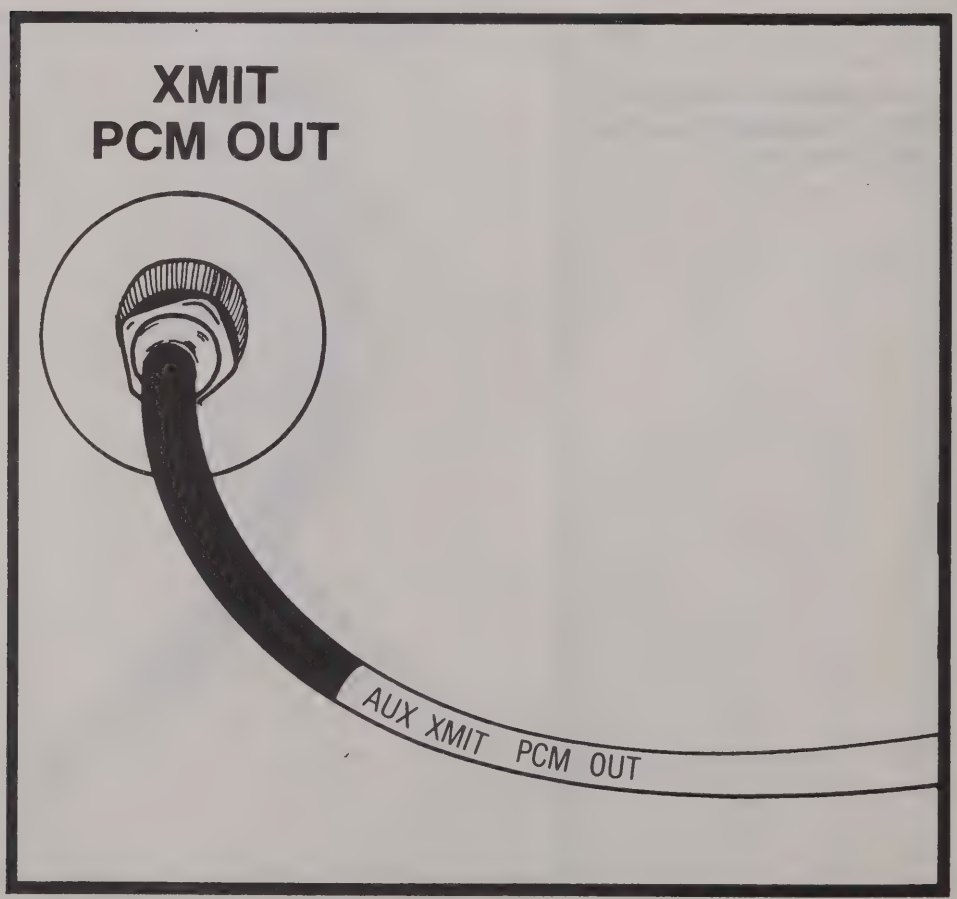
67

Now, disconnect the top cable on the right side of the Secure-Bypass box, and...



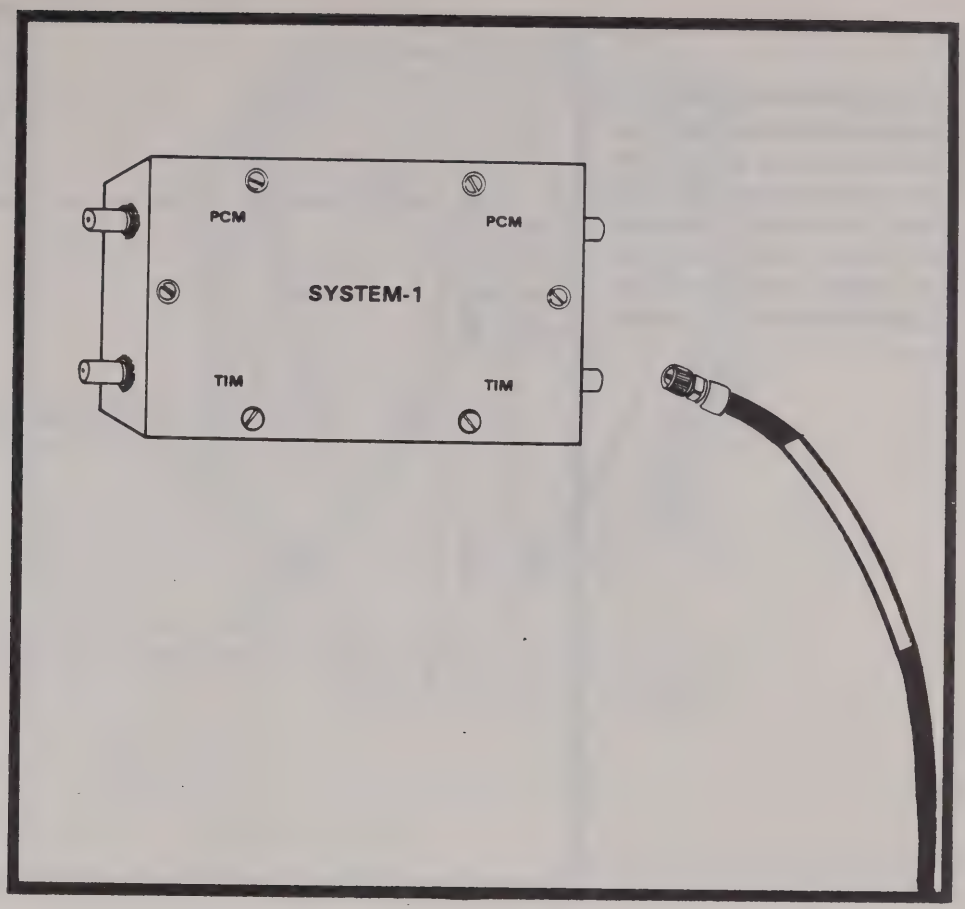
68

...reconnect it to the XMIT PCM OUT connector on the rear of the KG-27.



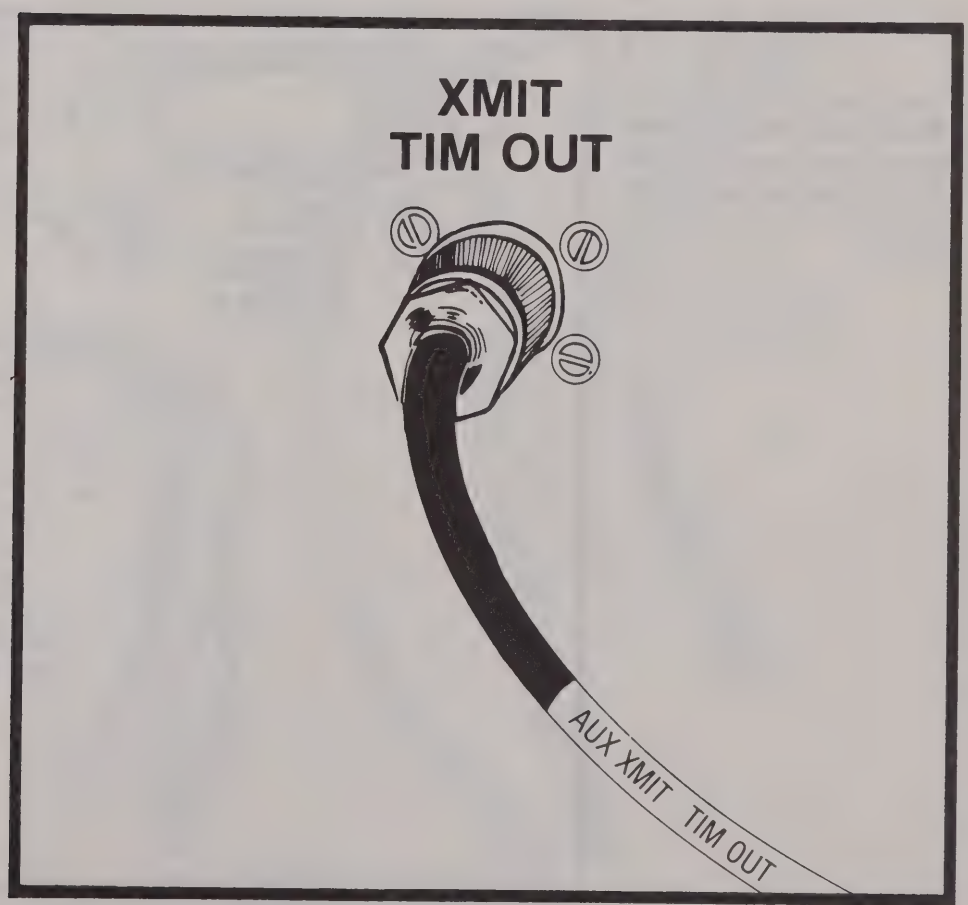
69

Next, disconnect the bottom cable on the right side of the Secure-Bypass box and...



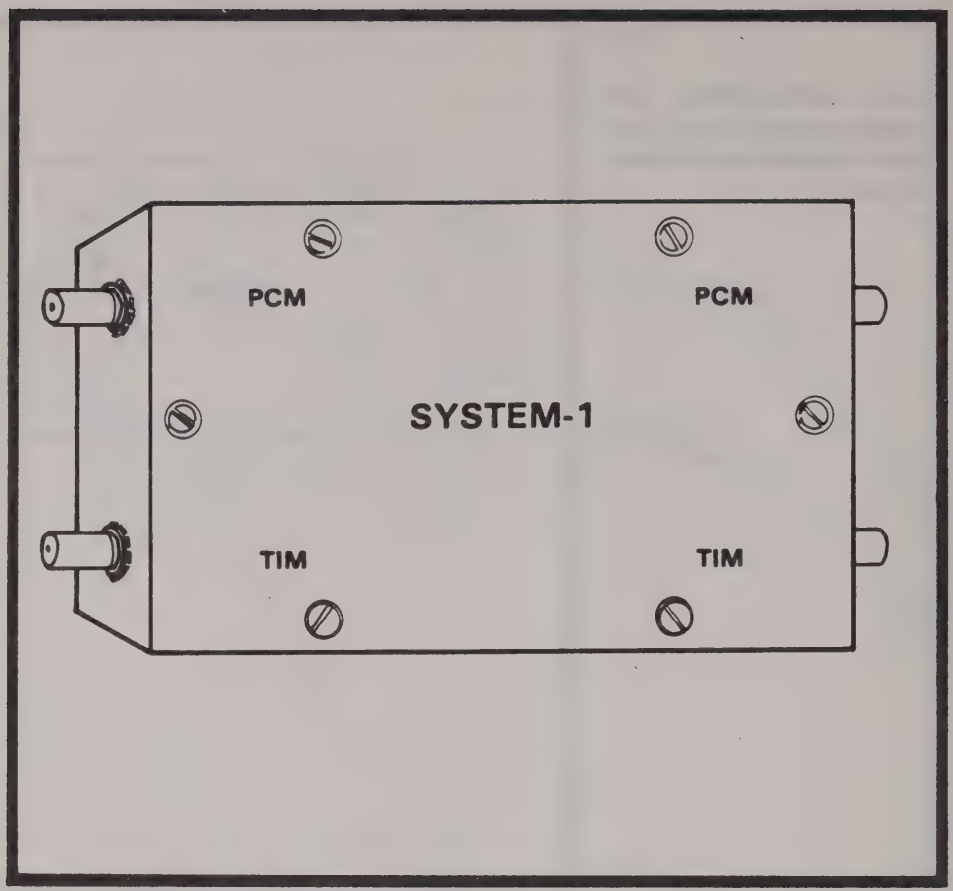
70

...reconnect it to the XMIT TIM OUT connector on the rear of the KG-27.



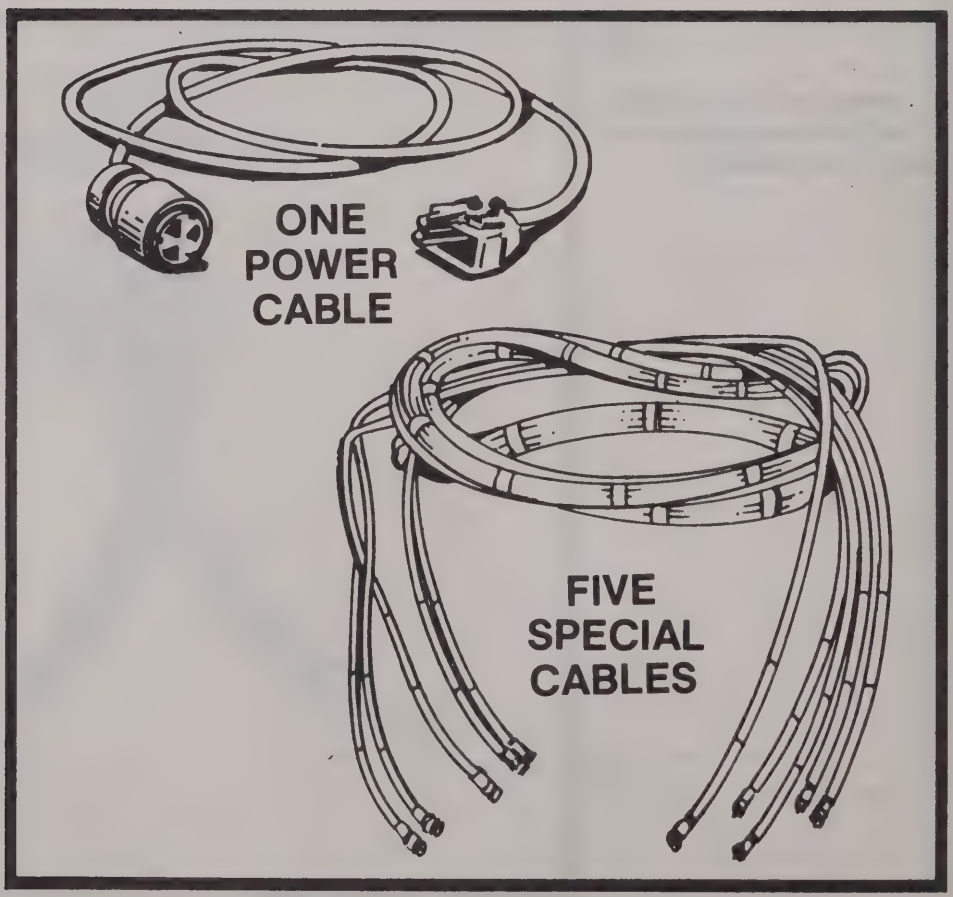
71

By repositioning these four cables, you have taken the Secure-Bypass Box out of the system. Your KG-27 is now connected between the patch panel and the TD-352/U. The TD-352/U is precabled to the patch panel.



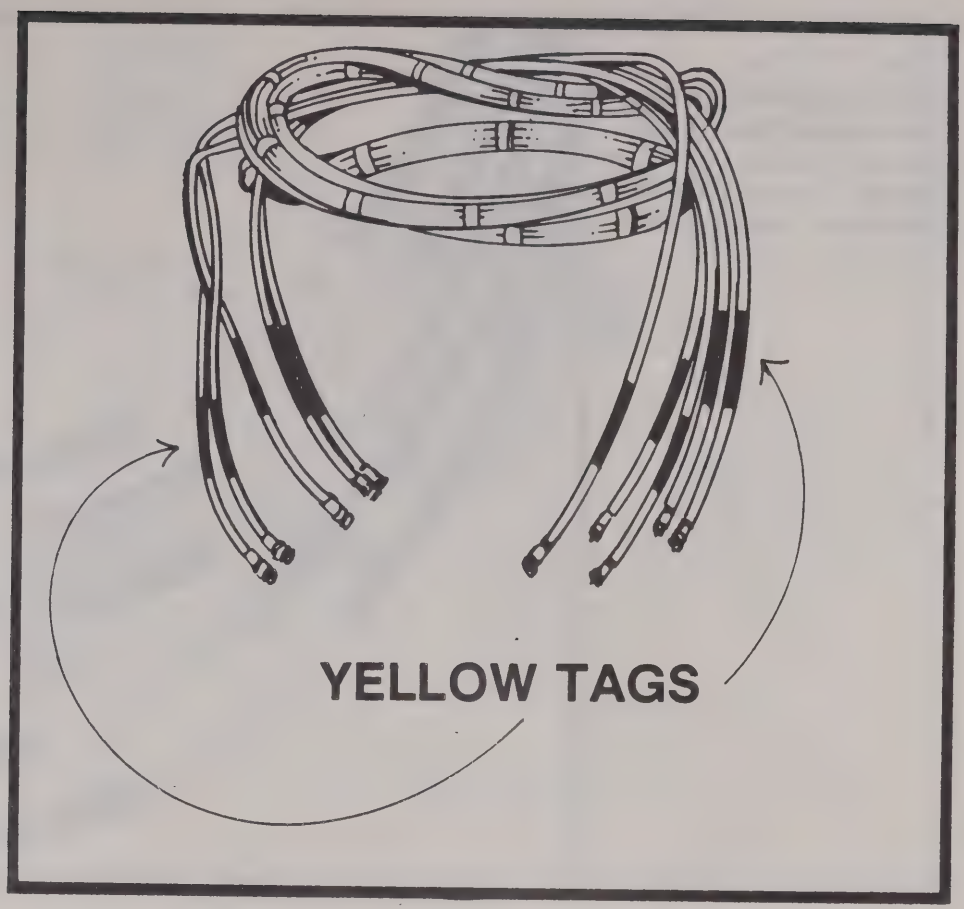
72

Now you will connect the five special cables between the Adapter connector UG-1923/G on the front of the TD-352 to the rear of the KG-27.



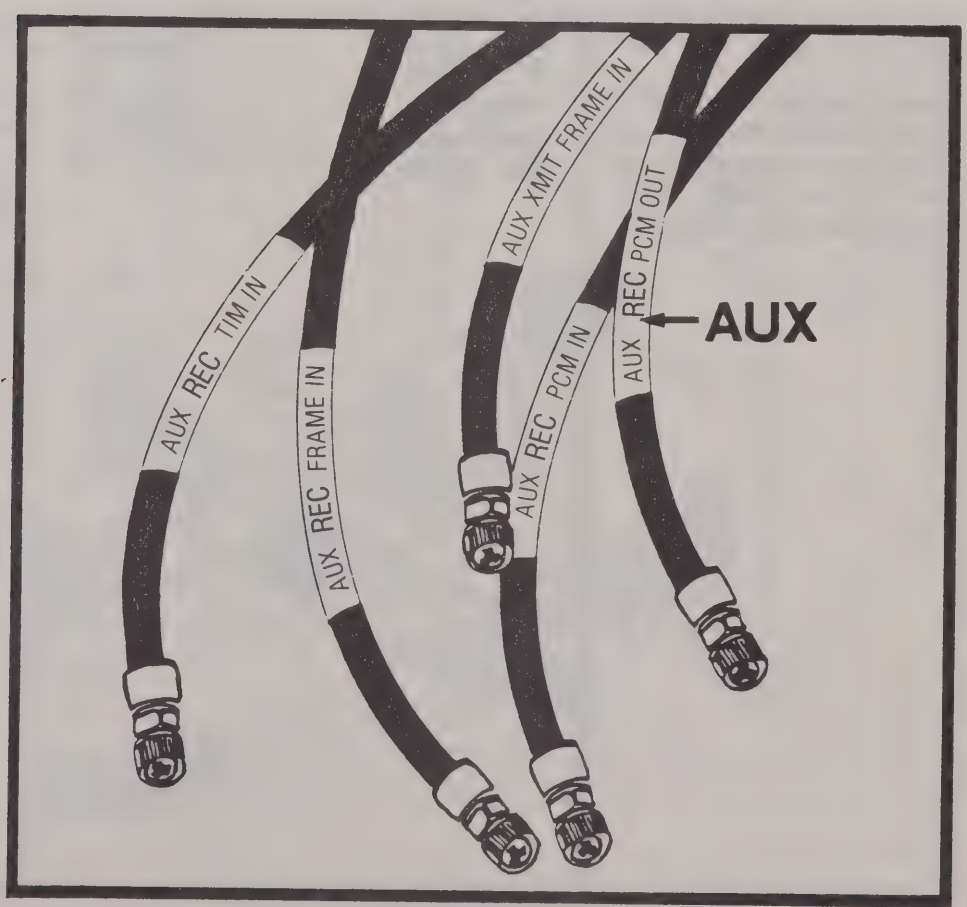
73

Look at the special cables. You will notice that each end of each cable has a yellow tag connected to it.



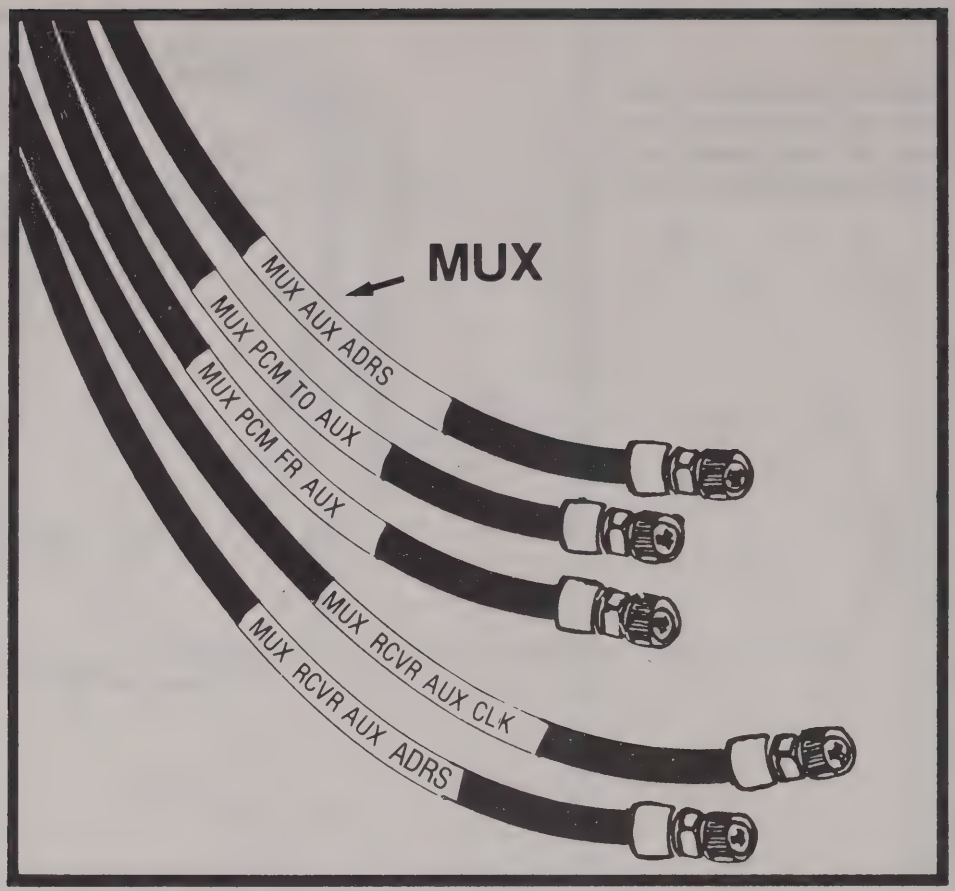
74

Some tags are labeled AUX (auxiliary). These ends will connect to the KG-27.



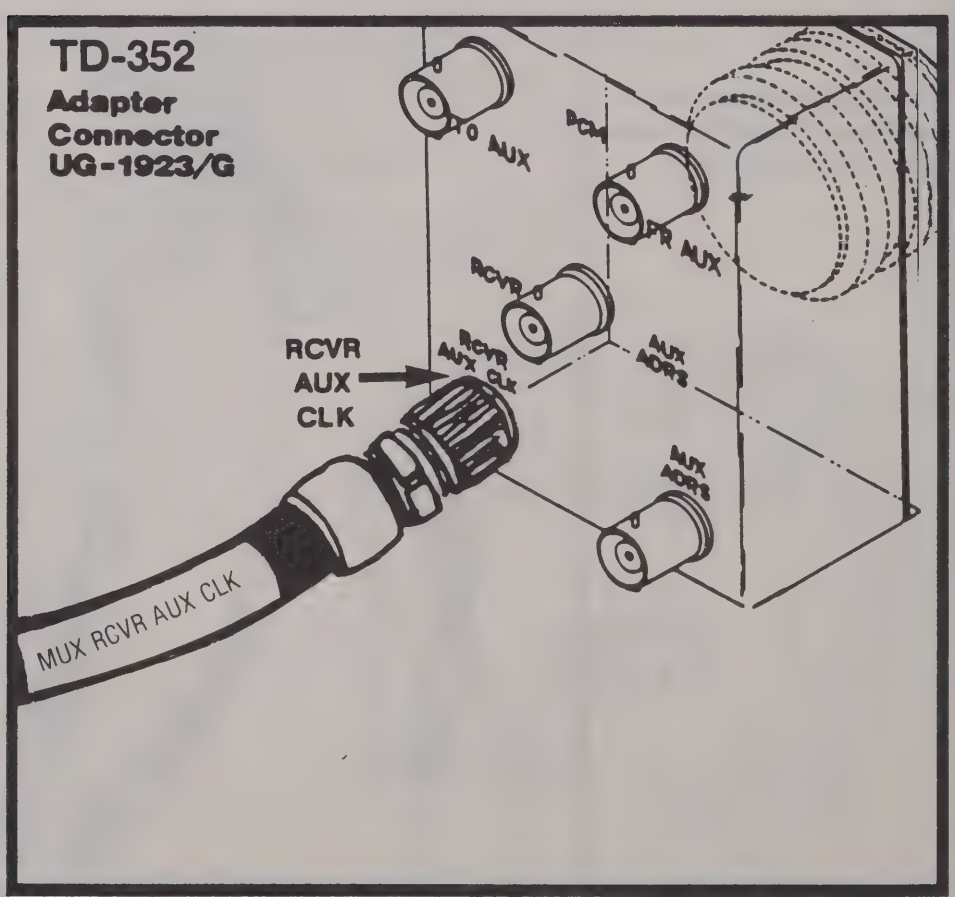
75

Other cable ends will have tags labeled MUX (multiplexer). These ends will connect to the Adapter Connector on the TD-352/U.



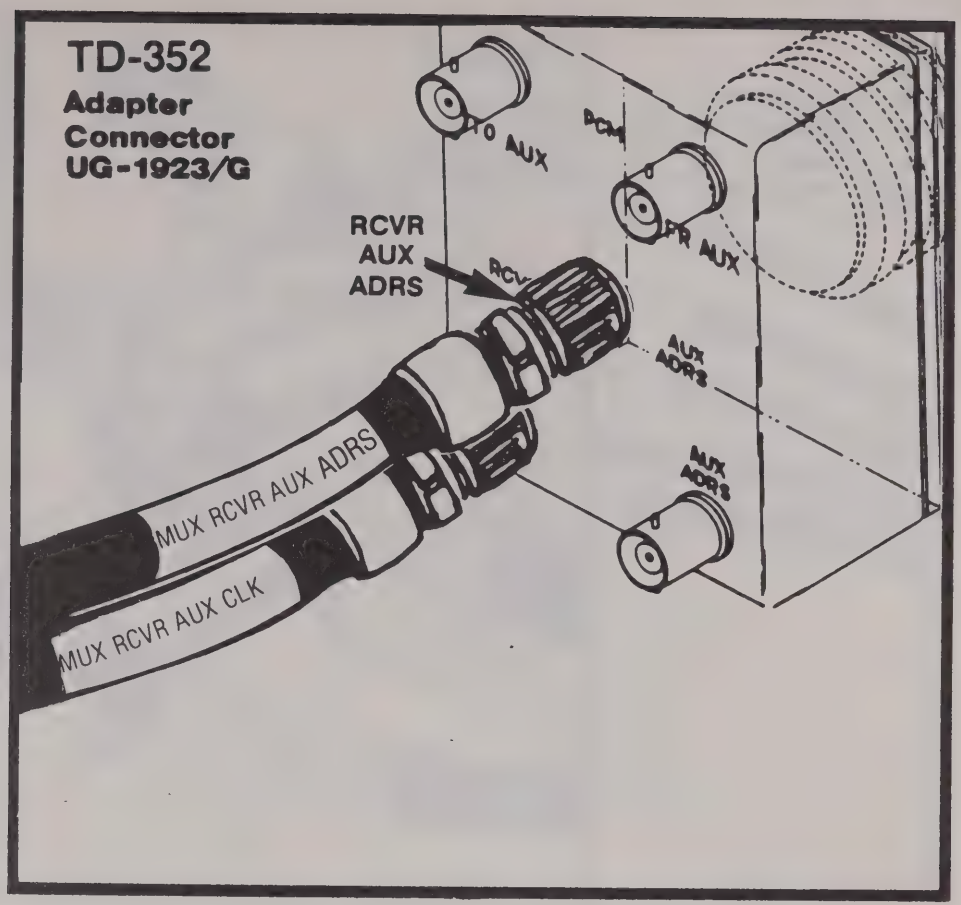
76

First, find a cable end labeled MUX RCVR AUX CLK and connect it to the RCVR AUX CLK connector on the Adapter.



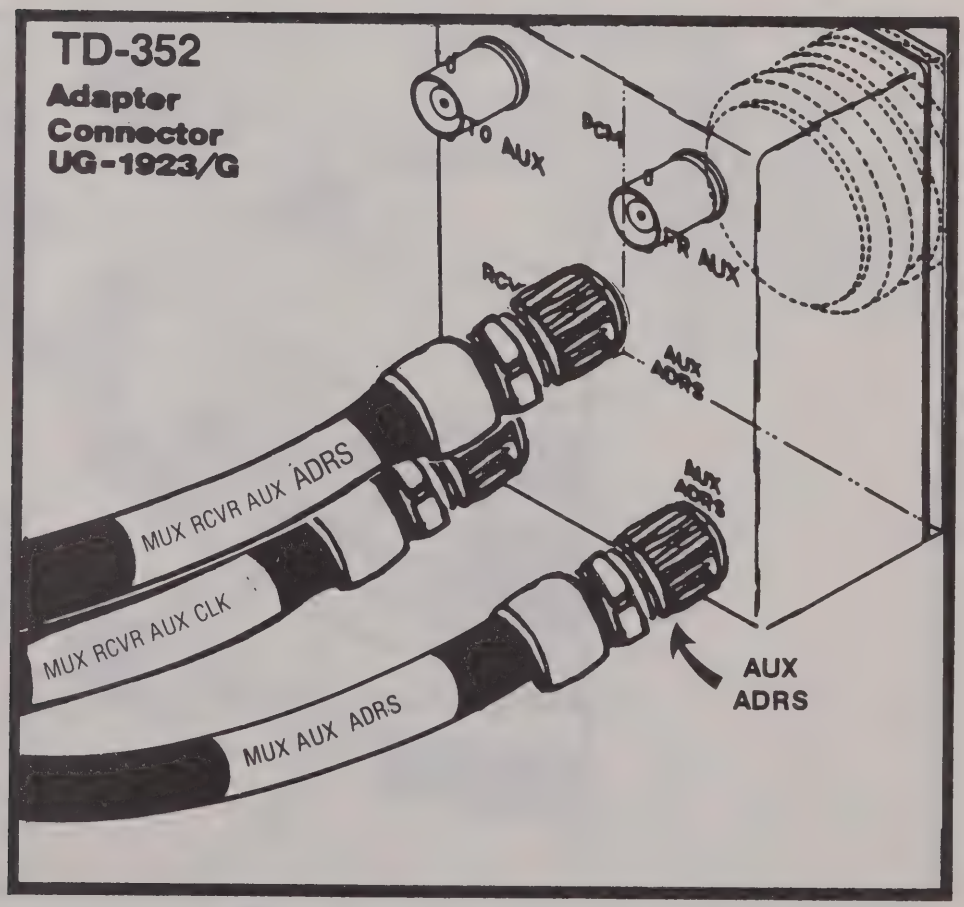
77

Next, find a cable end labeled MUX RCVR AUX ADRS and connect it to the RCVR AUX ADRS connector on the Adapter.



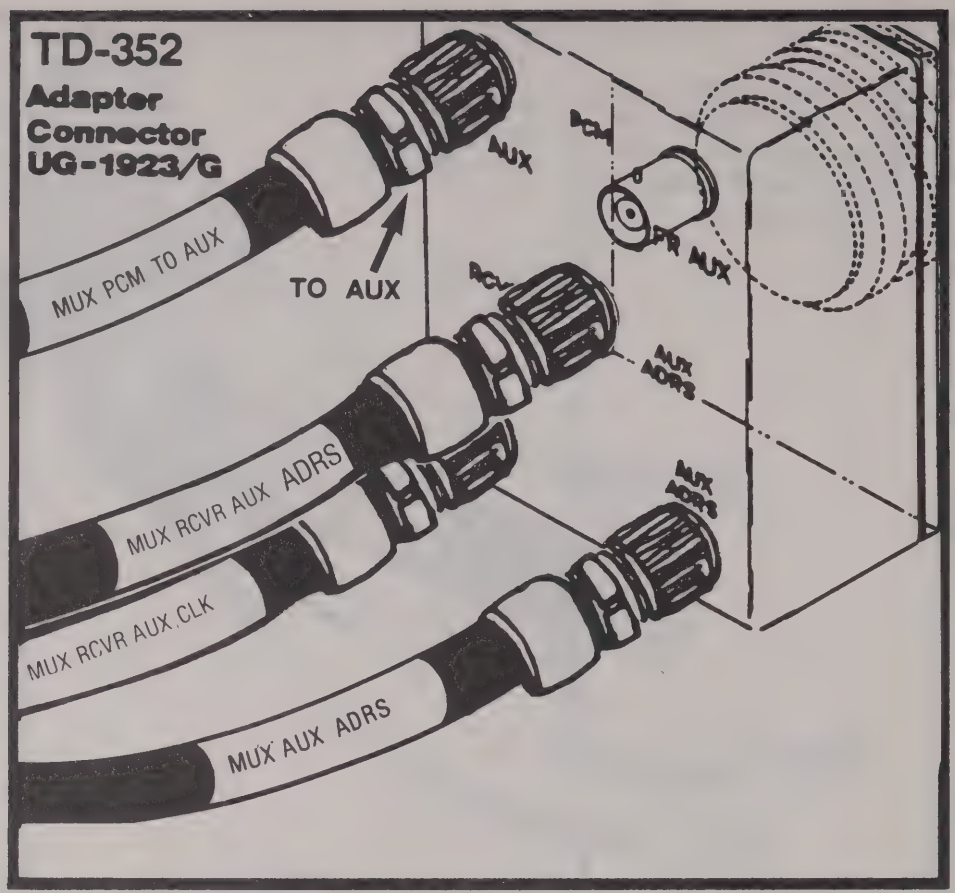
78

Now, find a cable end labeled MUX AUX ADRS and connect it to the Adapter at the AUX ADRS connector.



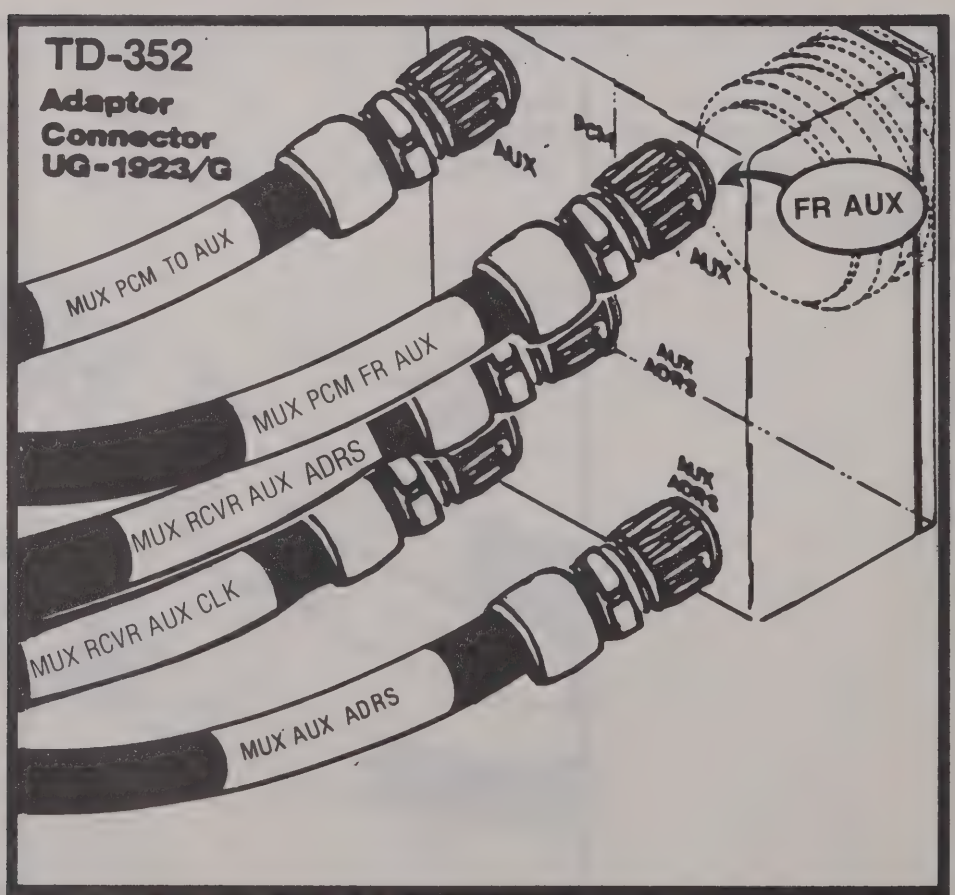
79

Next, find a cable end labeled MUX PCM TO AUX and connect it to the Adapter PCM TO AUX connector.



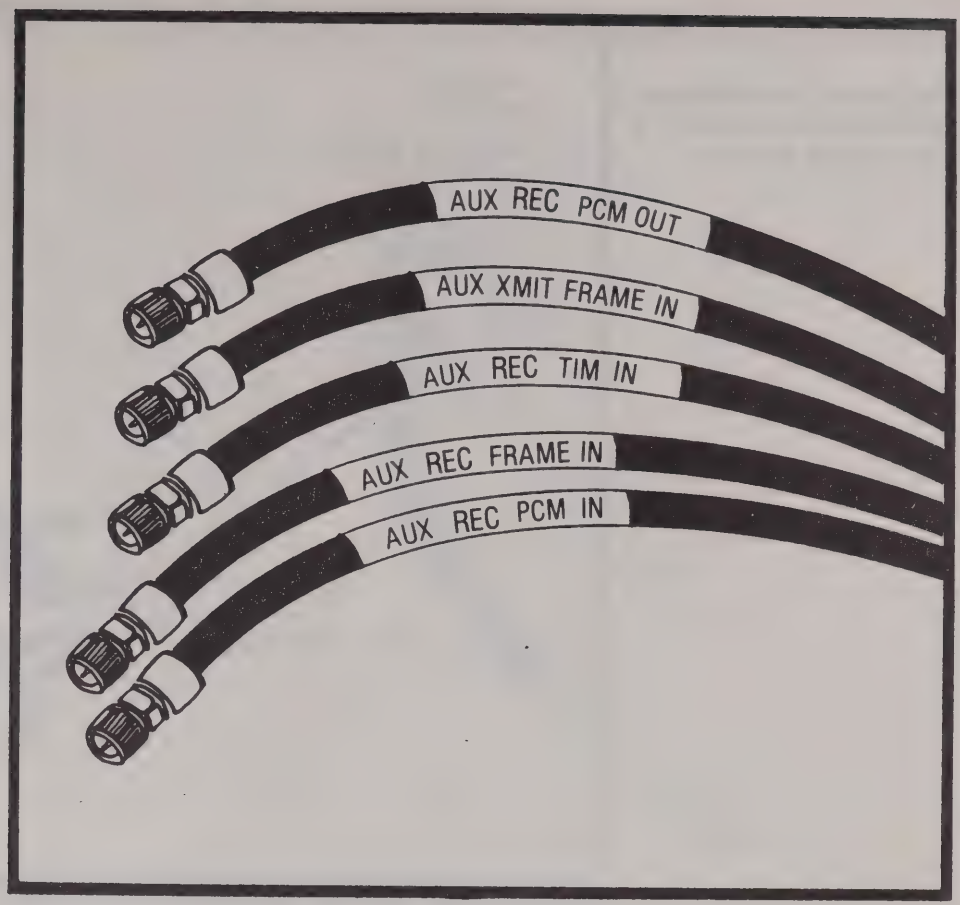
80

Finally, locate a cable end labeled MUX PCM FR AUX and connect it to the Adapter PCM FR AUX connector. You have now connected all five cables to the TD-352/U.



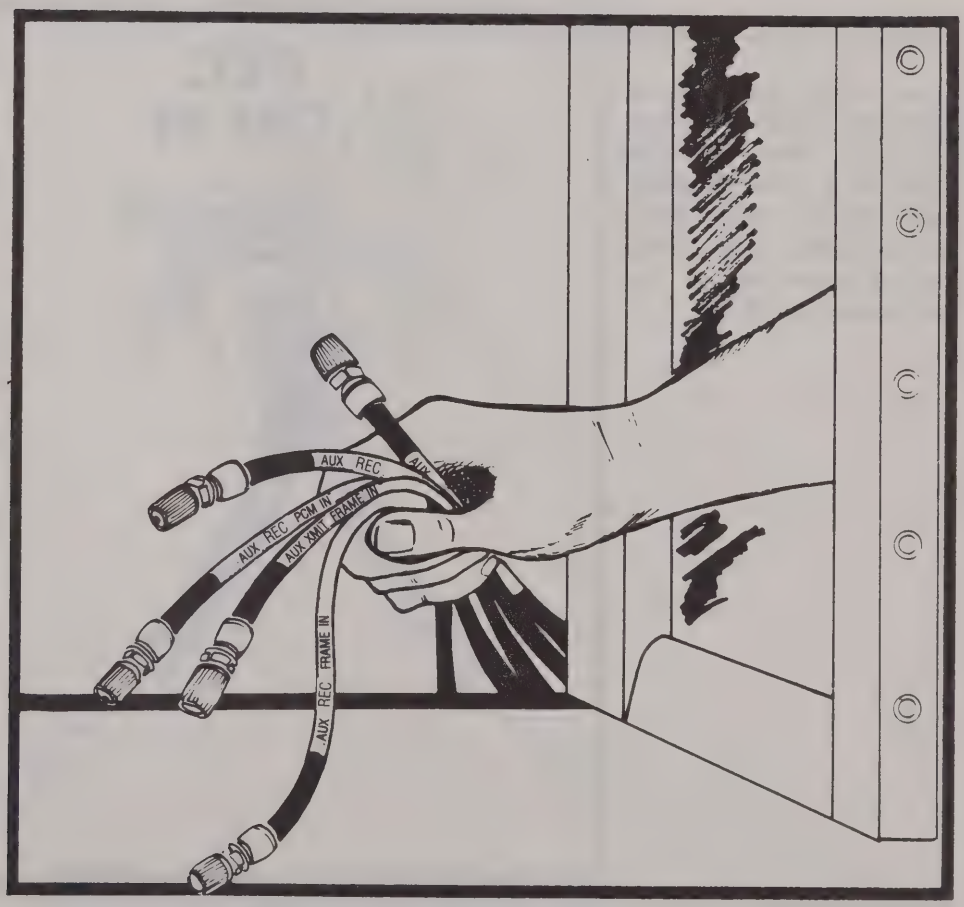
81

You are now going to connect the other ends of these five cables to the KG-27.



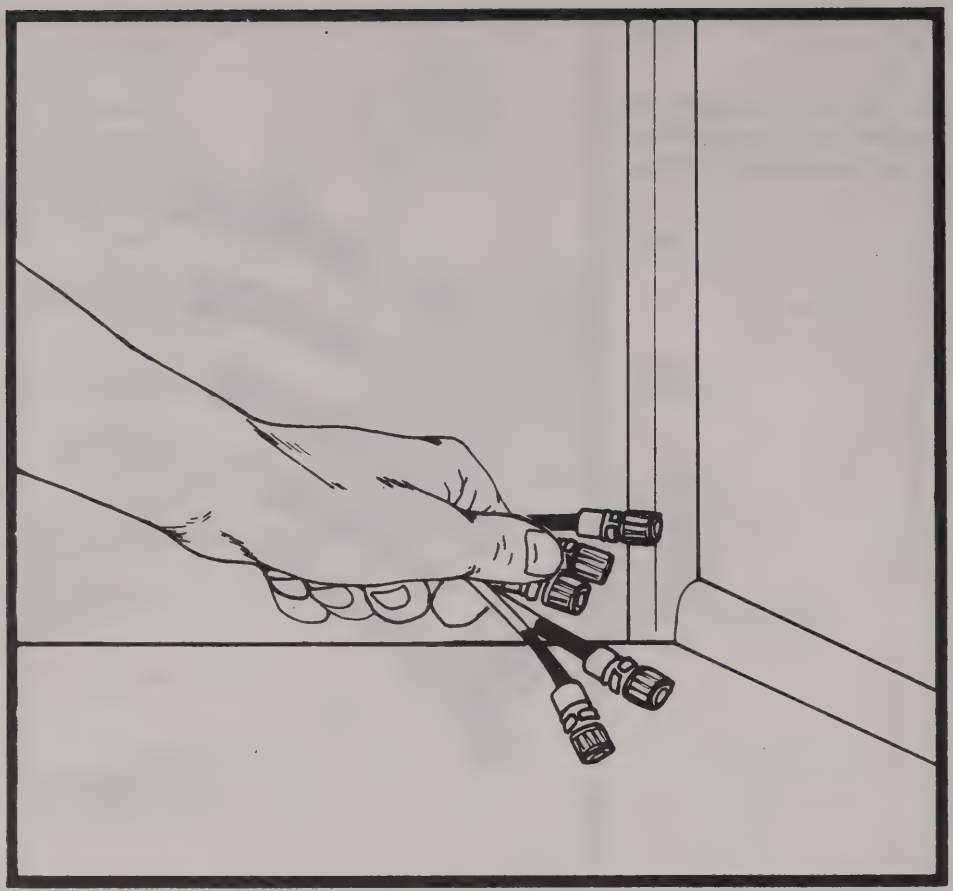
82

Route the unconnected ends of these cables from the TD-352 to the rear of the equipment rack.



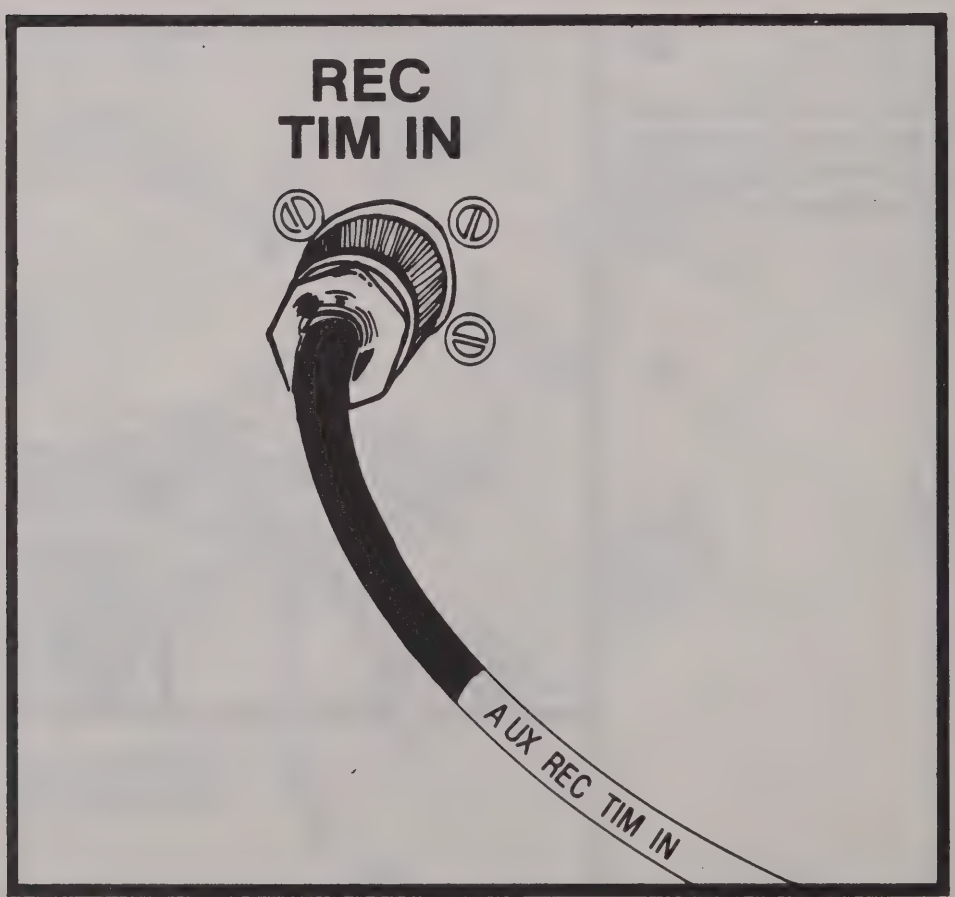
83

Next, route the cables up to the KG-27 rack and bring them in from the rear.



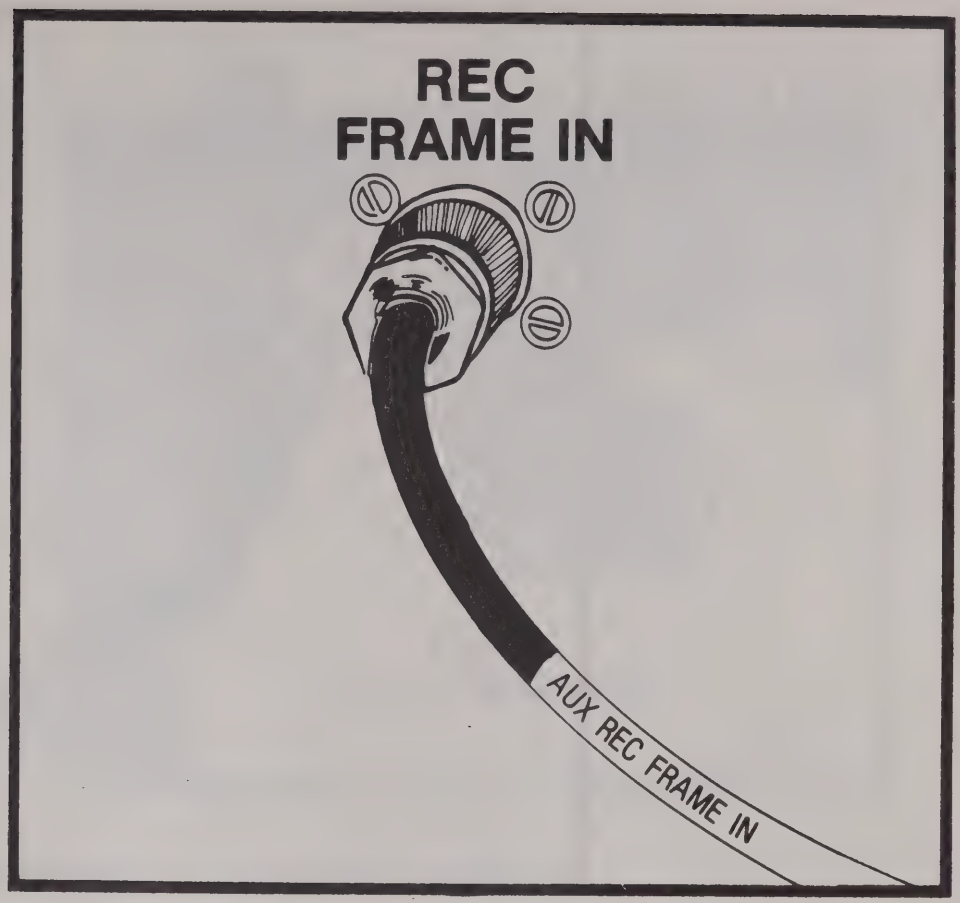
84

Now, you can start connecting these cables to the KG-27. First, locate a cable end labeled AUX REC TIM IN. Then, connect this cable to the REC TIM IN connector on the rear of the KG-27.



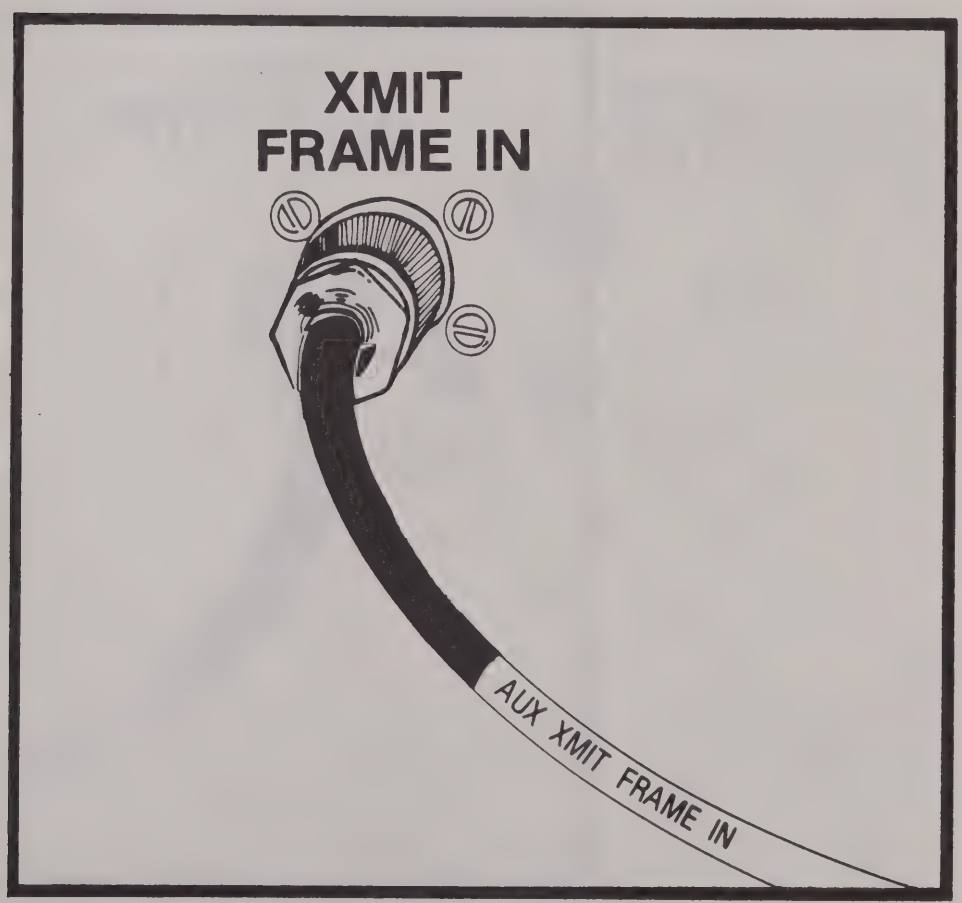
85

Next, locate a cable end labeled AUX REC FRAME IN and connect it to the REC FRAME IN connector on the rear of the KG-27.



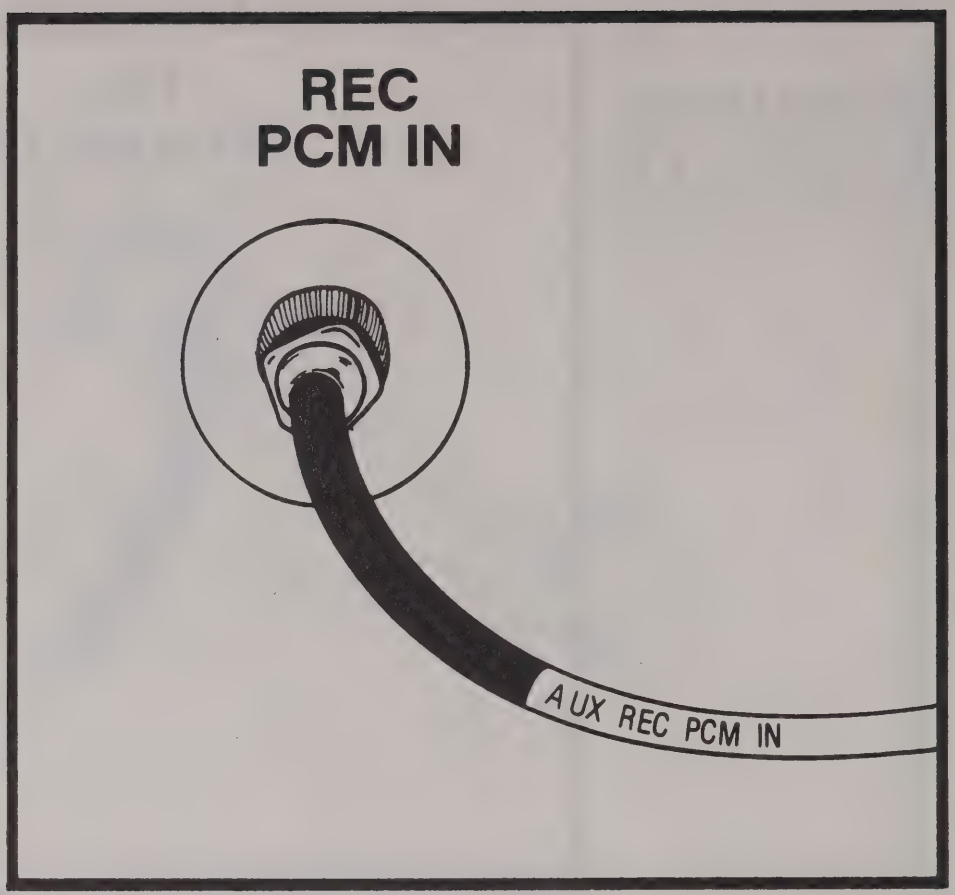
86

Now, locate a cable end labeled AUX XMIT FRAME IN and connect it to the XMIT FRAME IN connector.



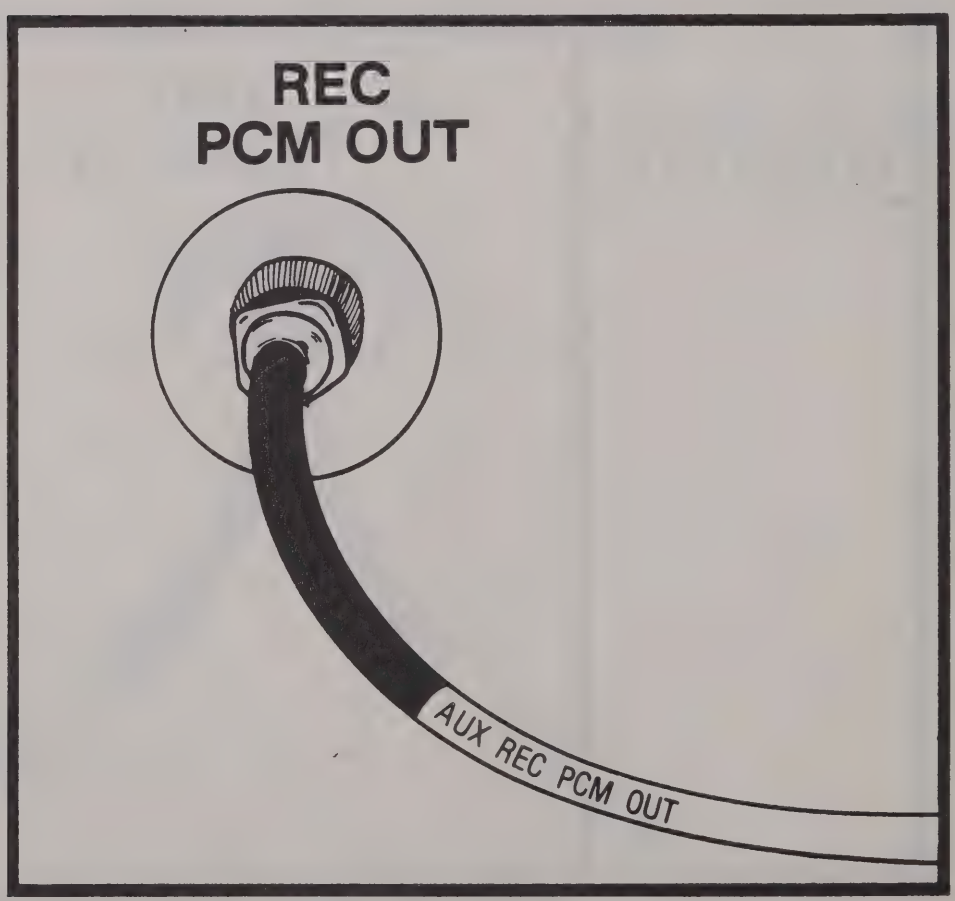
87

Next, locate a cable end labeled AUX REC PCM IN and connect it to the REC PCM IN connector.



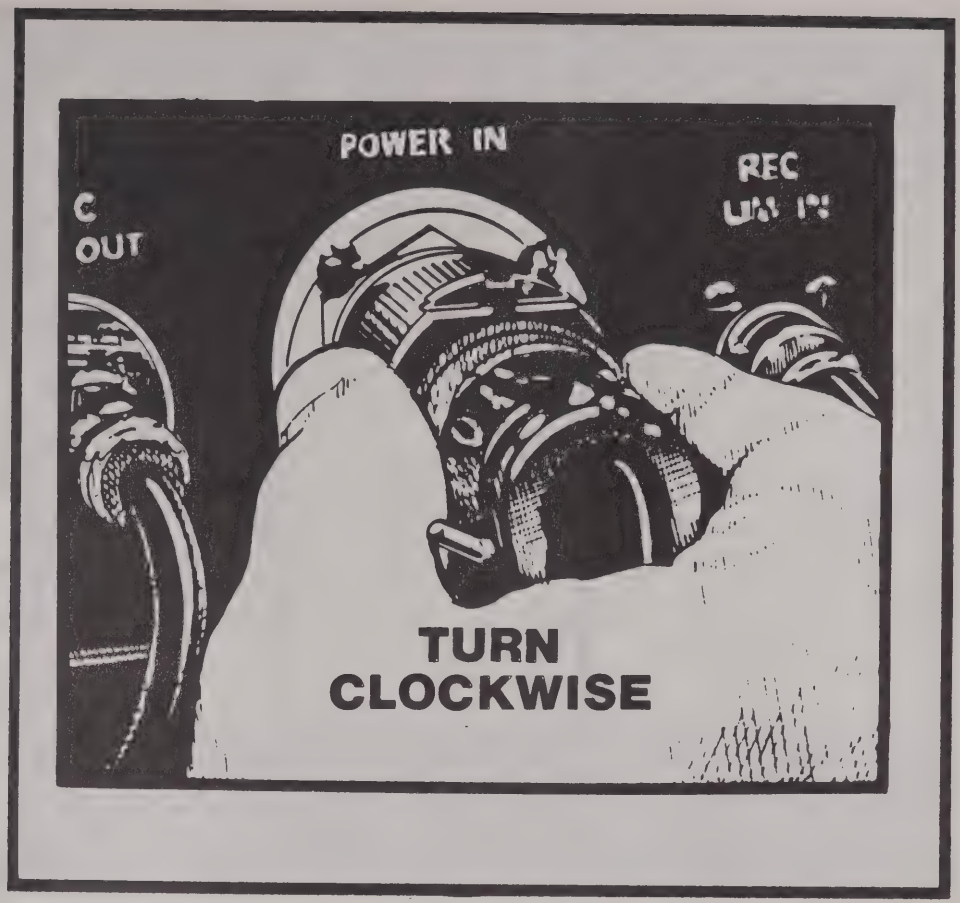
88

Finally, locate a cable end labeled AUX REC PCM OUT and connect it to the REC PCM OUT connector.



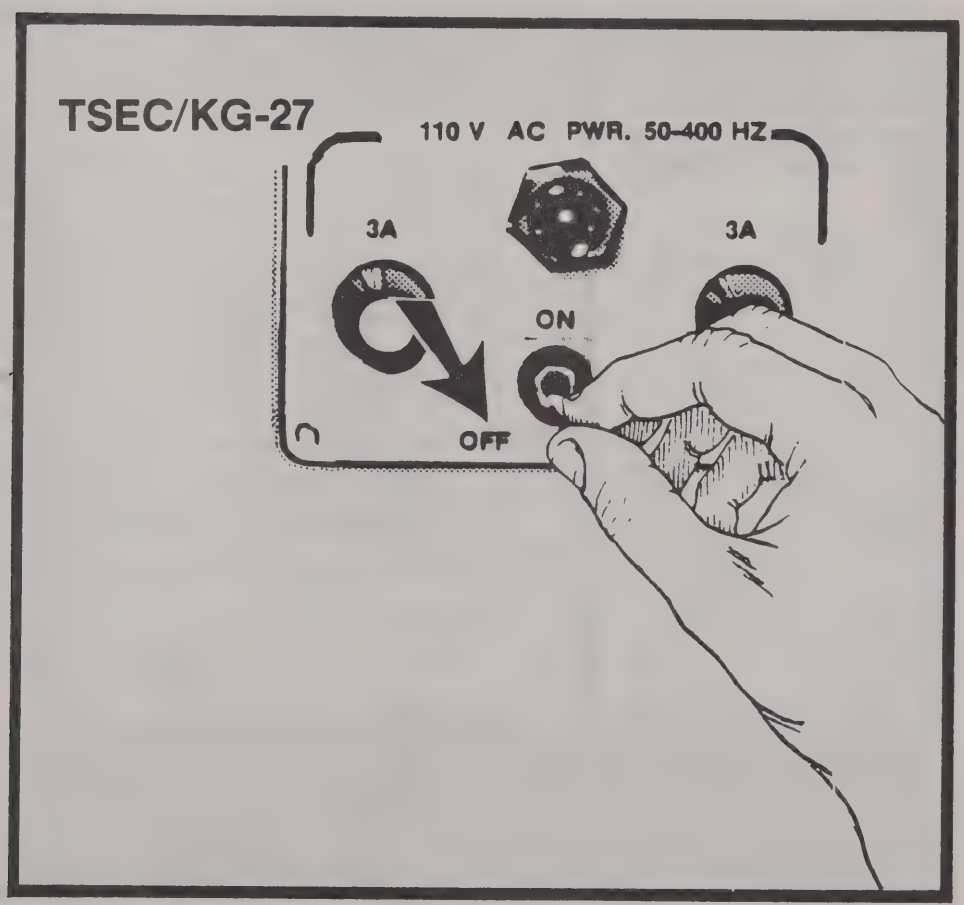
89

You have only one cable left to connect. This is the power cable for the KG-27. Connect the three-pin female connector (of the power cable) to the POWER IN connector on the rear of the KG-27.



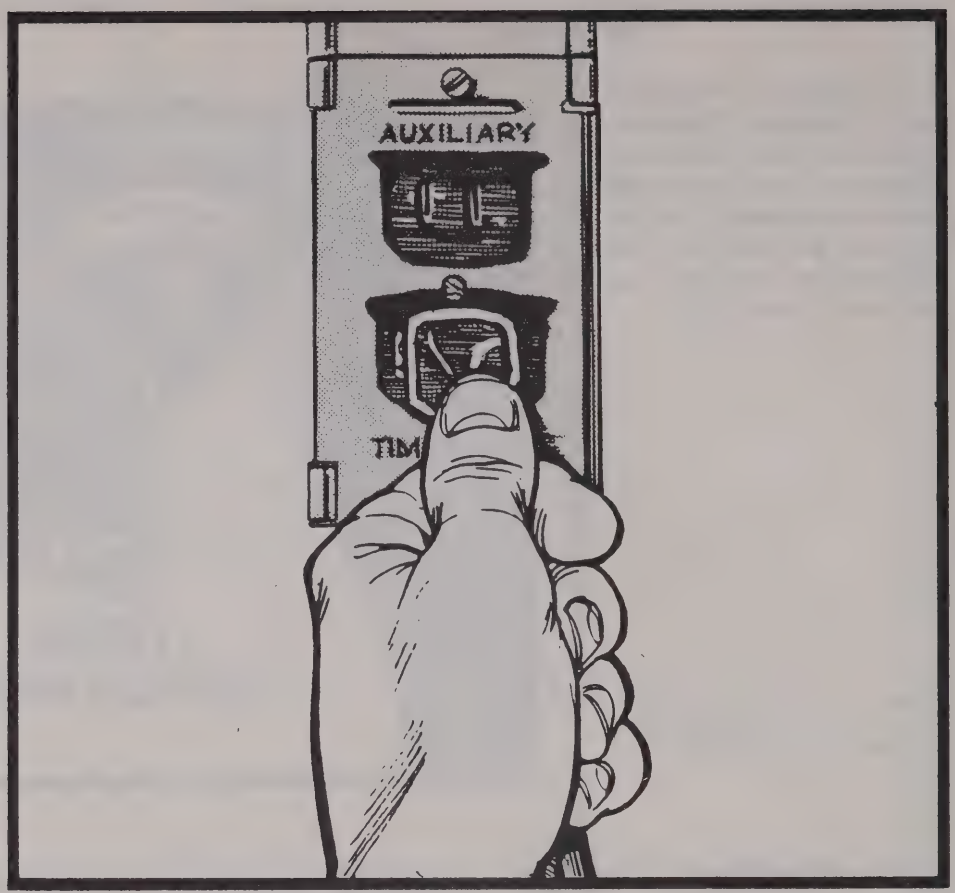
90

Next, make sure the power switch on the front of the KG-27 is in the OFF/RE-SET position and...



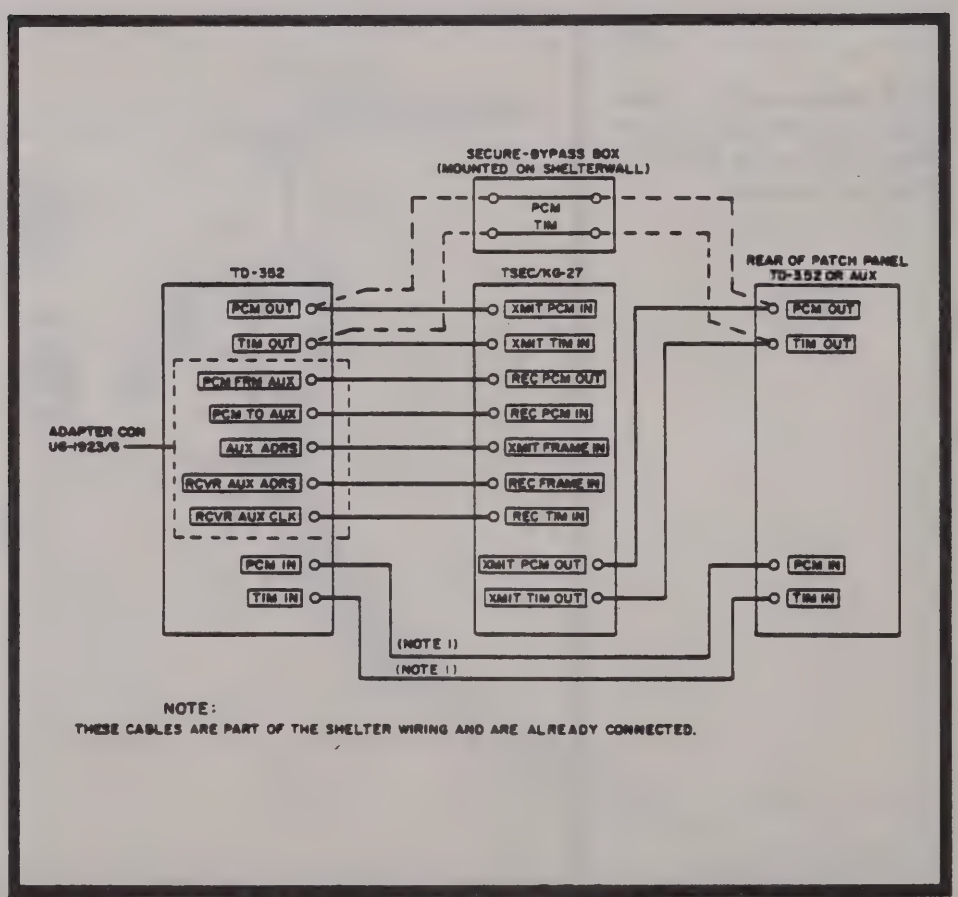
91

...then plug the KG-27 power cable into the ac receptacle at the side of the equipment rack.



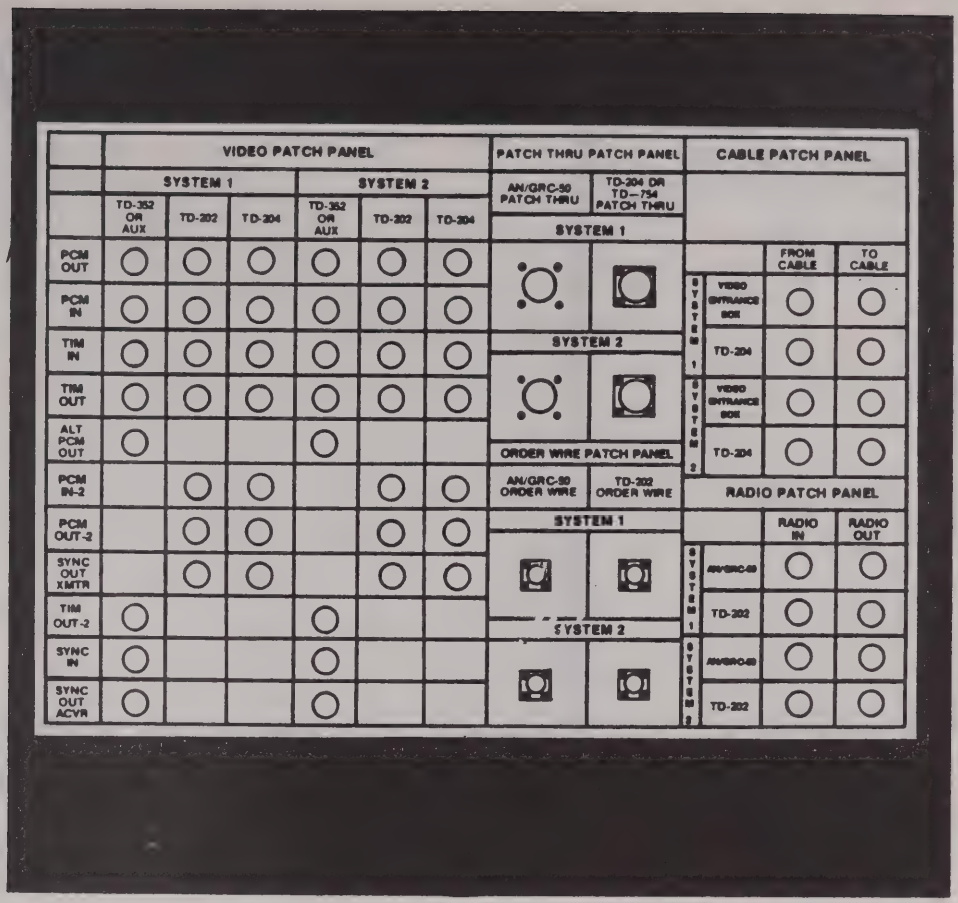
92

Your KG-27 is now connected to the rear of the patch panel TD-352 or AUX.



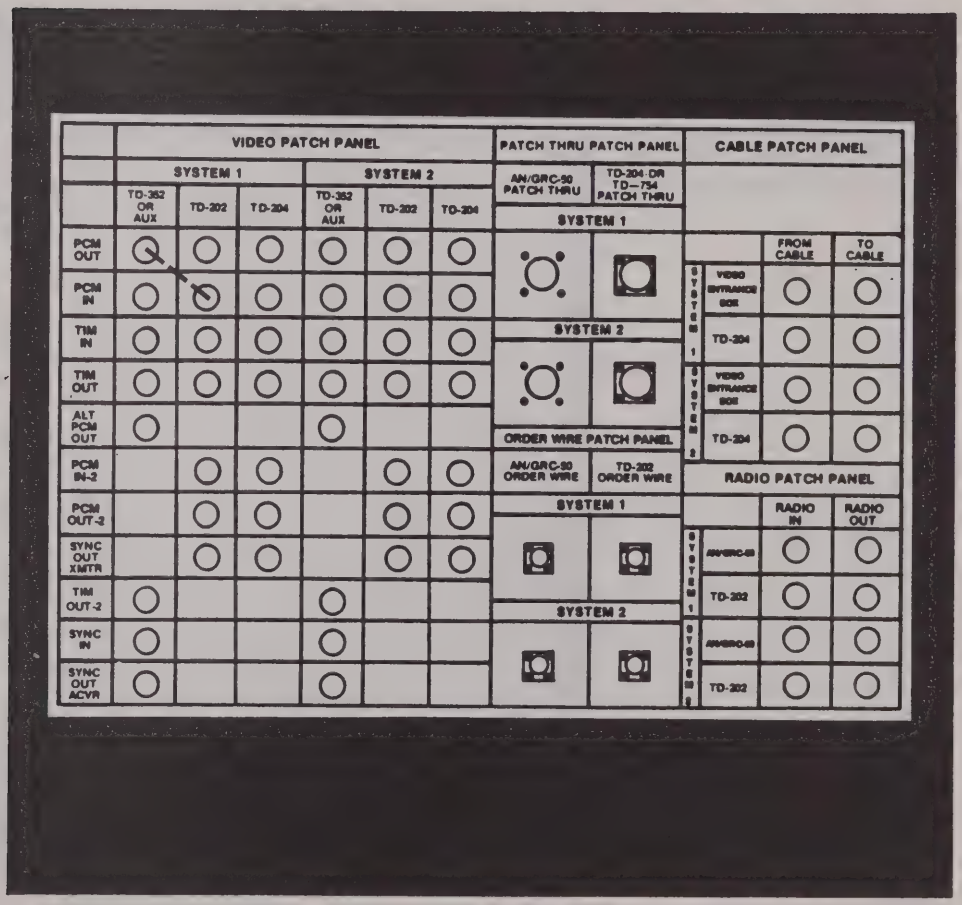
93

If you are operating as a radio terminal, you will make the following patches at the patch panel for a loopback test.



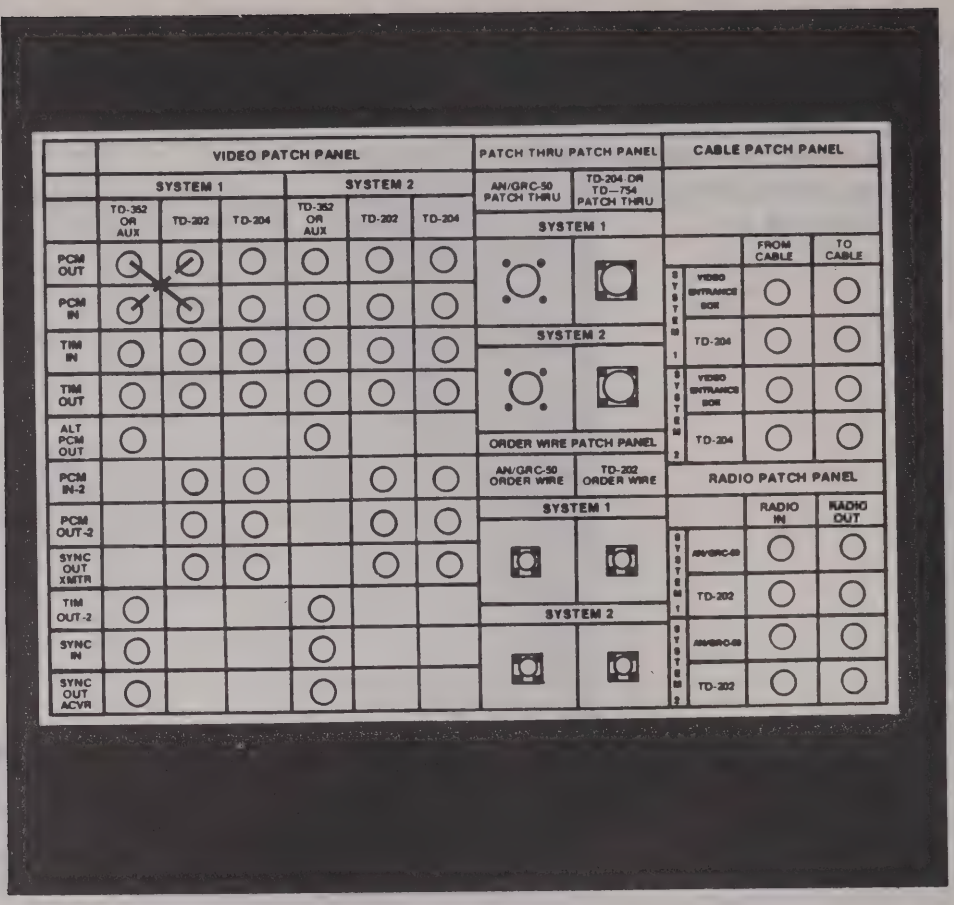
94

First, connect a patch cable between the TD-352 PCM OUT connector and the TD-202 PCM IN connector on the patch panel.



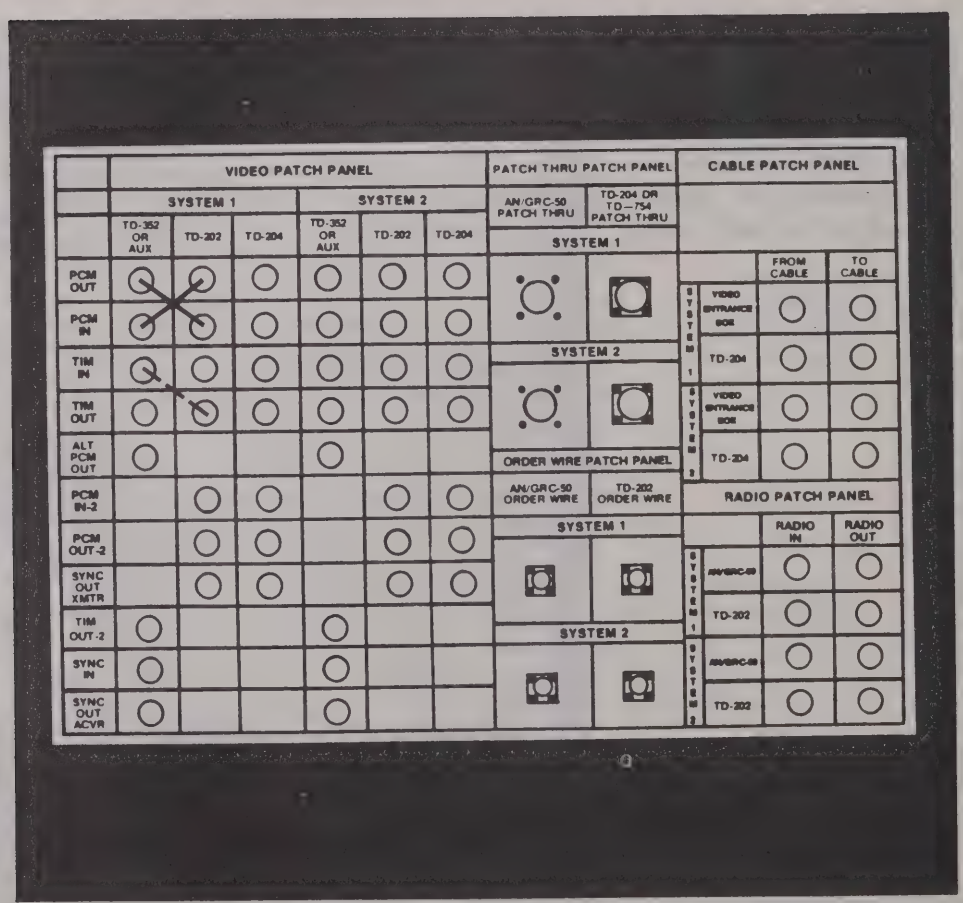
95

Then connect a patch cable between the TD-352 PCM IN connector and the TD-202 PCM OUT connector.



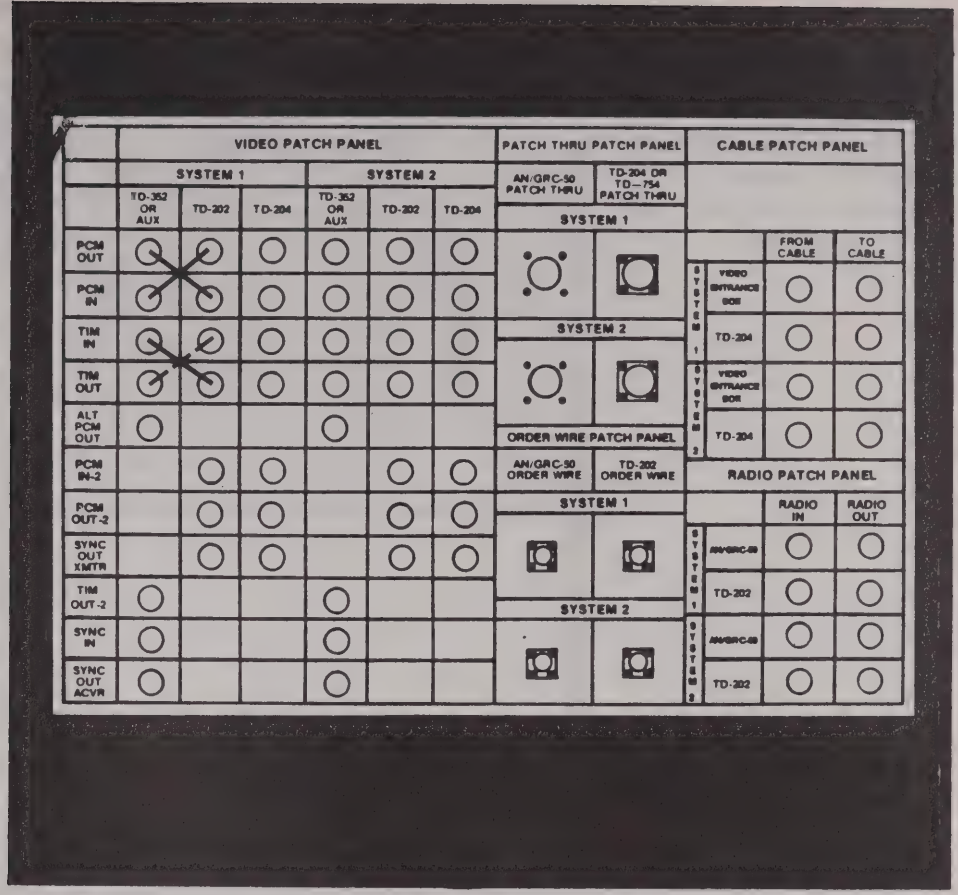
96

Next, connect a patch cable between the TD-352 TIM IN connector and the TD-202 TIM OUT connector.



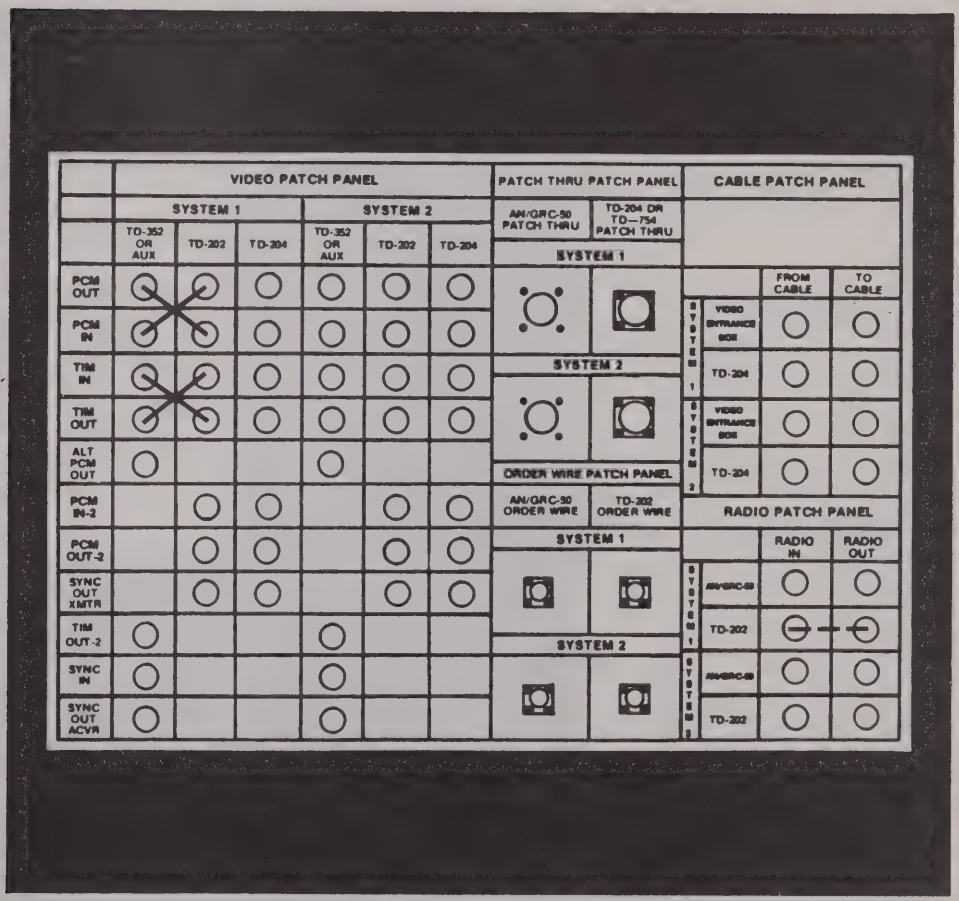
97

Connect another patch cable between the TD-352 TIM OUT connector and the TD-202 TIM IN connector.



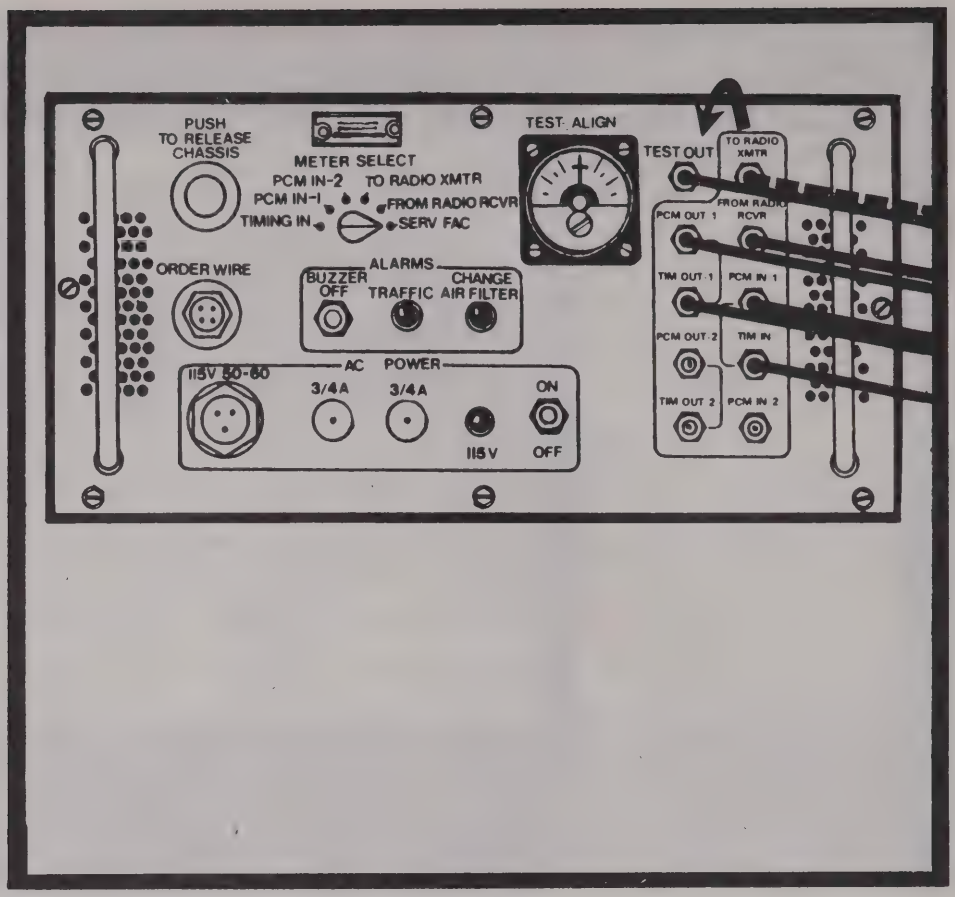
98

Finally, make a patch between the System 1 TD-202 RADIO IN connector and the System 1 RADIO OUT connector.



99

Now, on the TD-202, remove the CG-409/U cable from the TO RADIO XMTR connector and connect it to the TEST OUT connector.

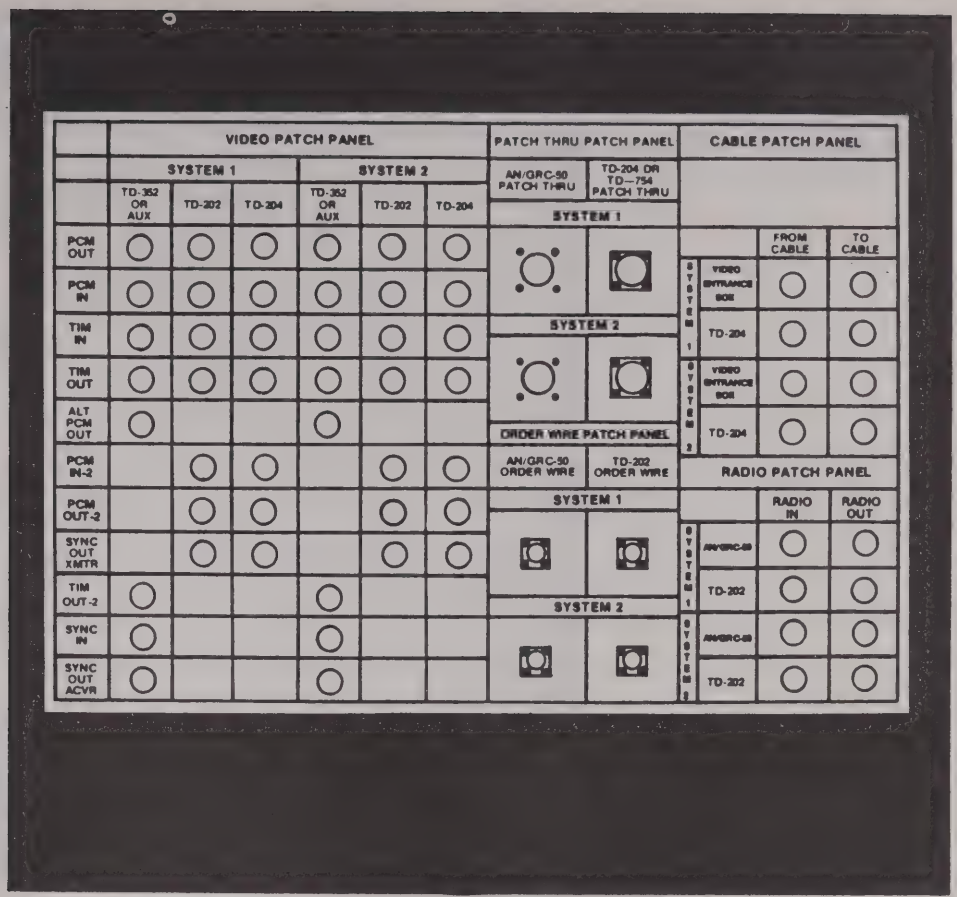


100

Then, on the side of the TD-202, set the OPR/TEST switch to TEST.

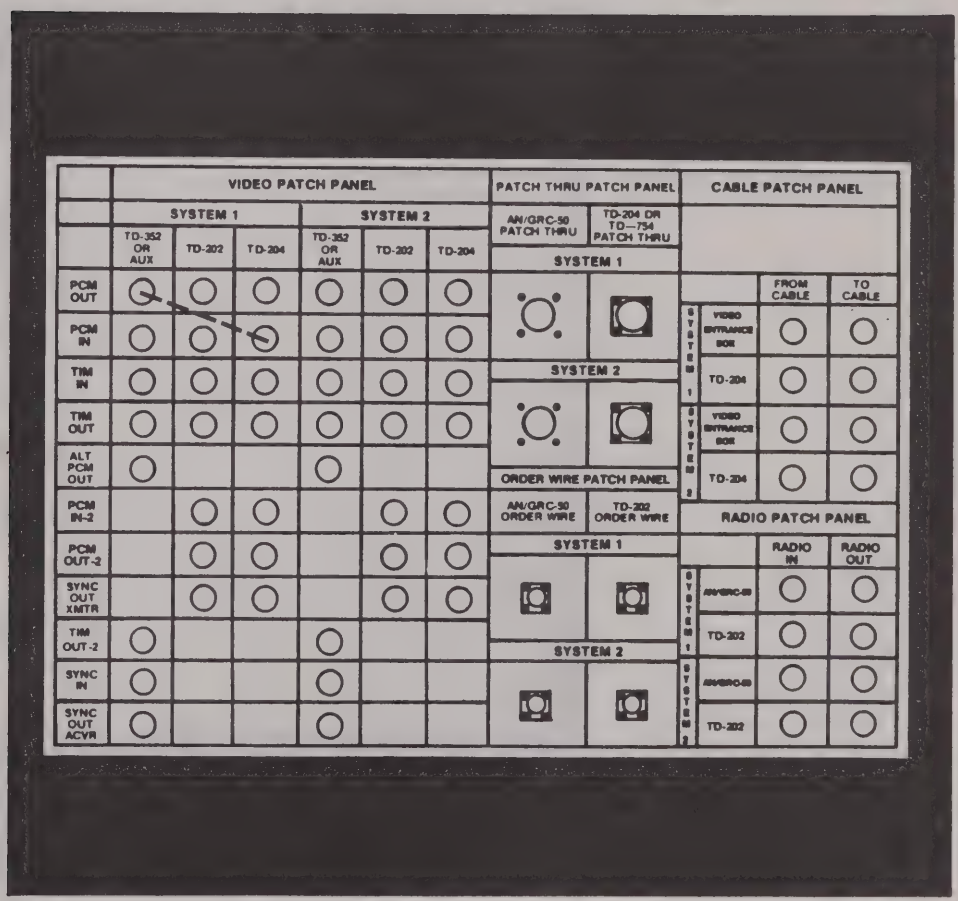
101

If you're operating as a cable Terminal, you will make the following patches at the patch panel for a loopback test.



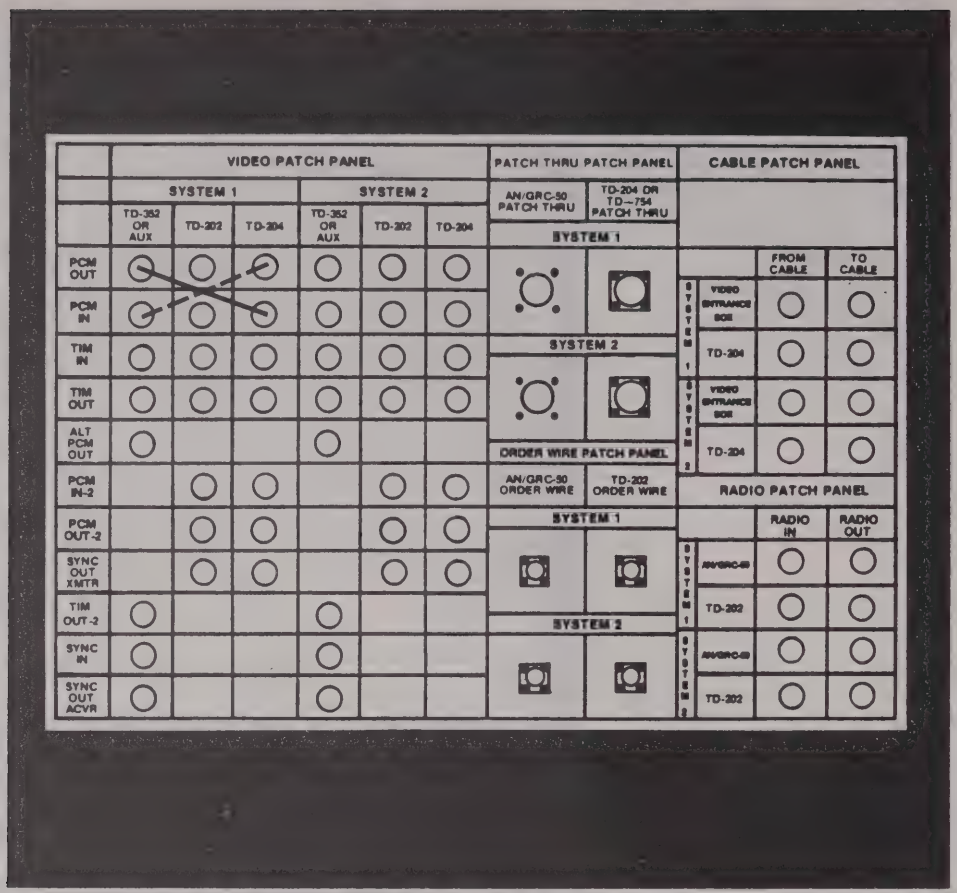
102

To do this you would first connect a CG-1040 cable between the TD-352 PCM OUT connector and the TD-204 PCM IN connector.



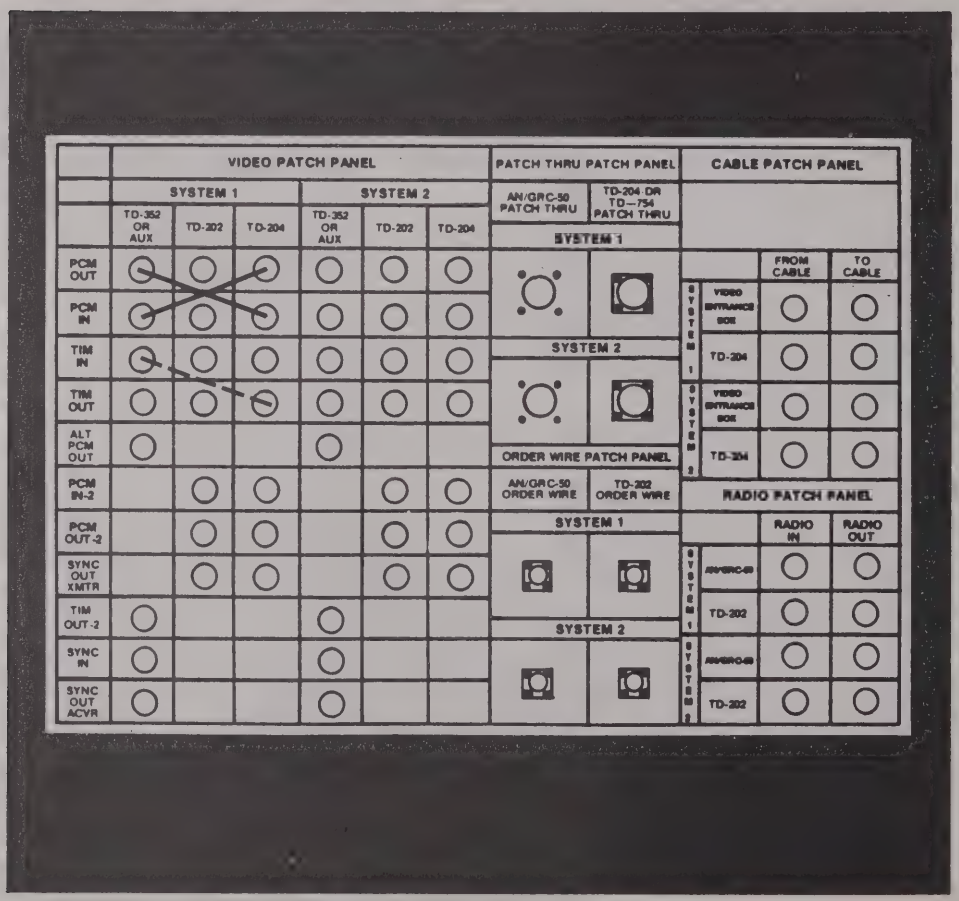
103

Then connect a CG-1040 cable between the TD-352 PCM IN connector and the TD-204 PCM OUT connector.



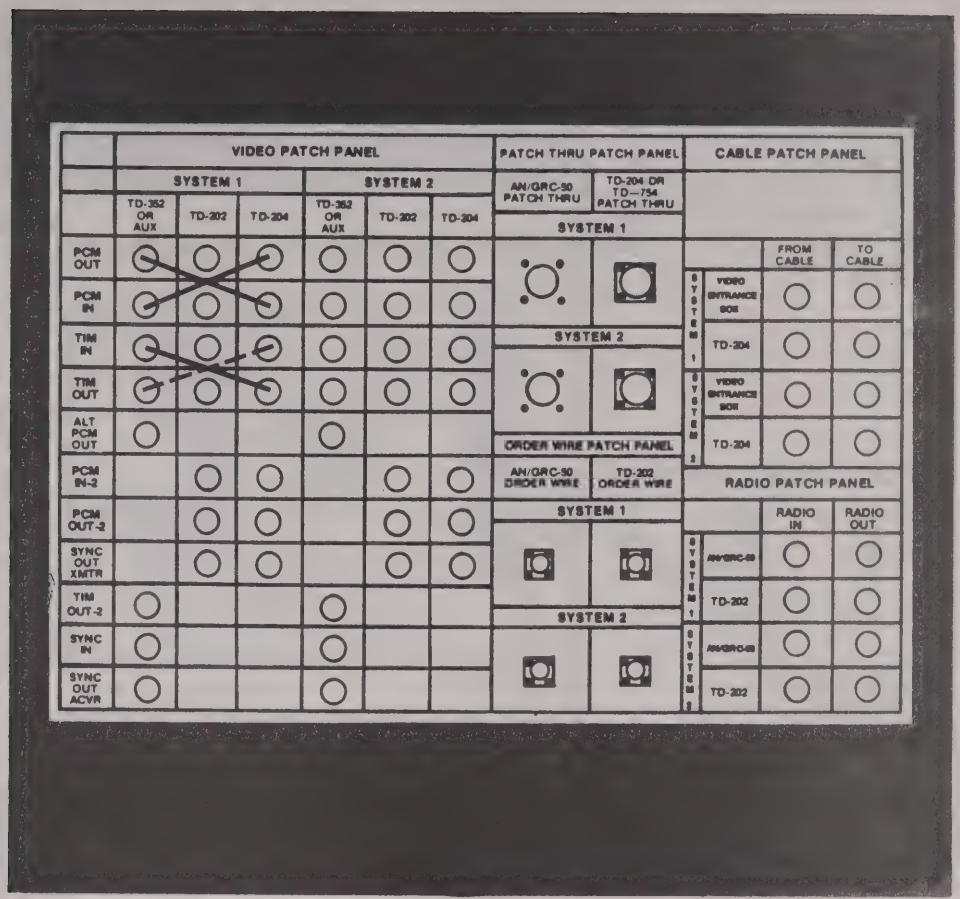
104

Next, connect a CG-1040 cable between the TD-352 TIM IN connector and the TD-204 TIM OUT connector.



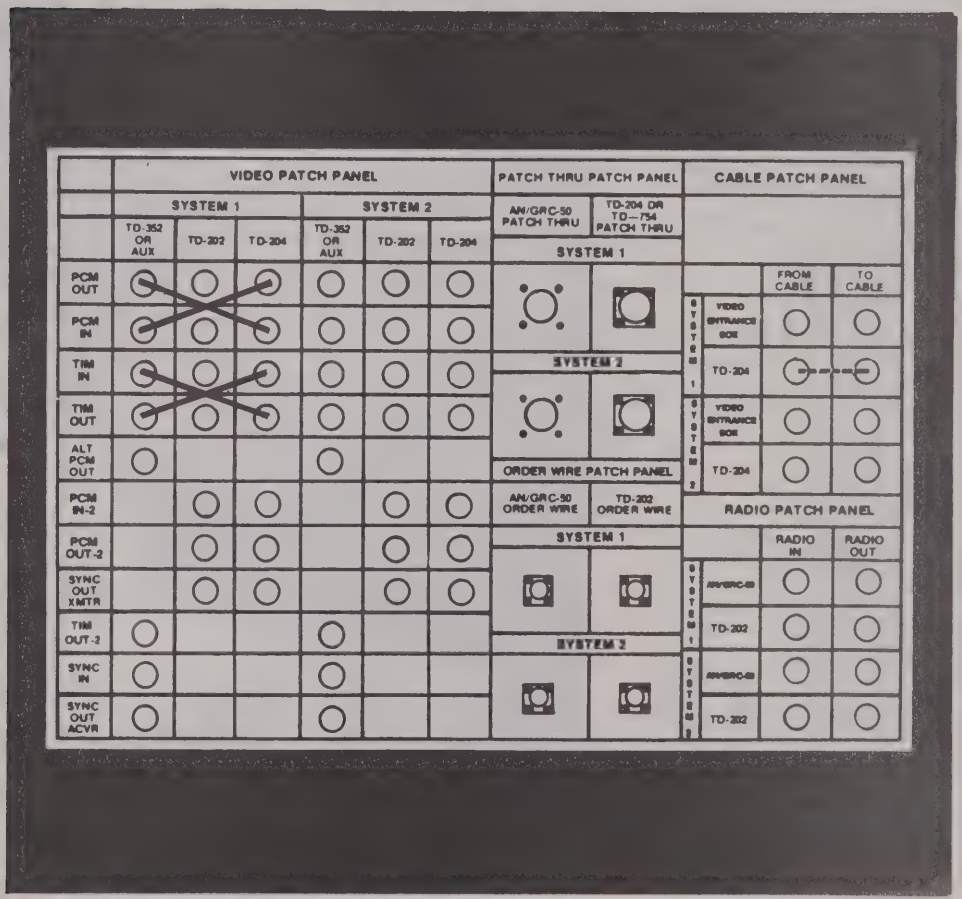
105

Connect a CG-1040 cable between the TD-352 TIM OUT connector and the TD-204 TIM IN connector.



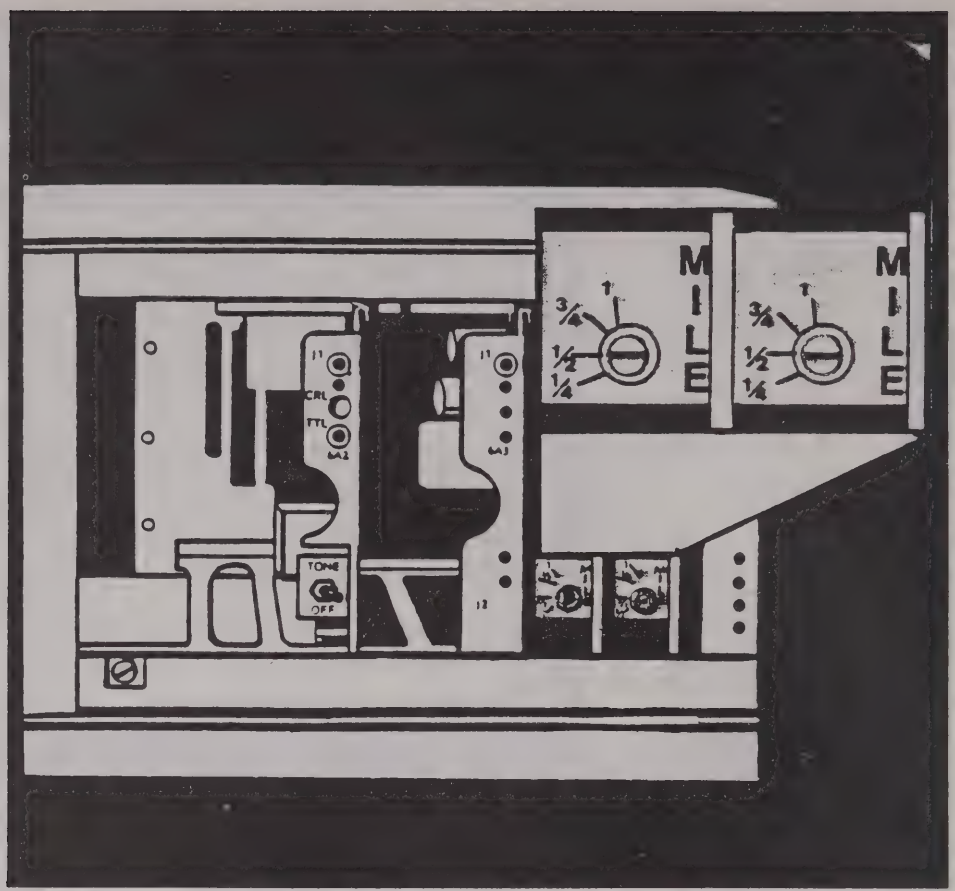
106

For the last patch connect one end of a CABLE PATCH cable to the system 1 TD-204 TO CABLE connector. Connect the other end of the CABLE PATCH cable to the system 1 TD-204 FROM CABLE connector.



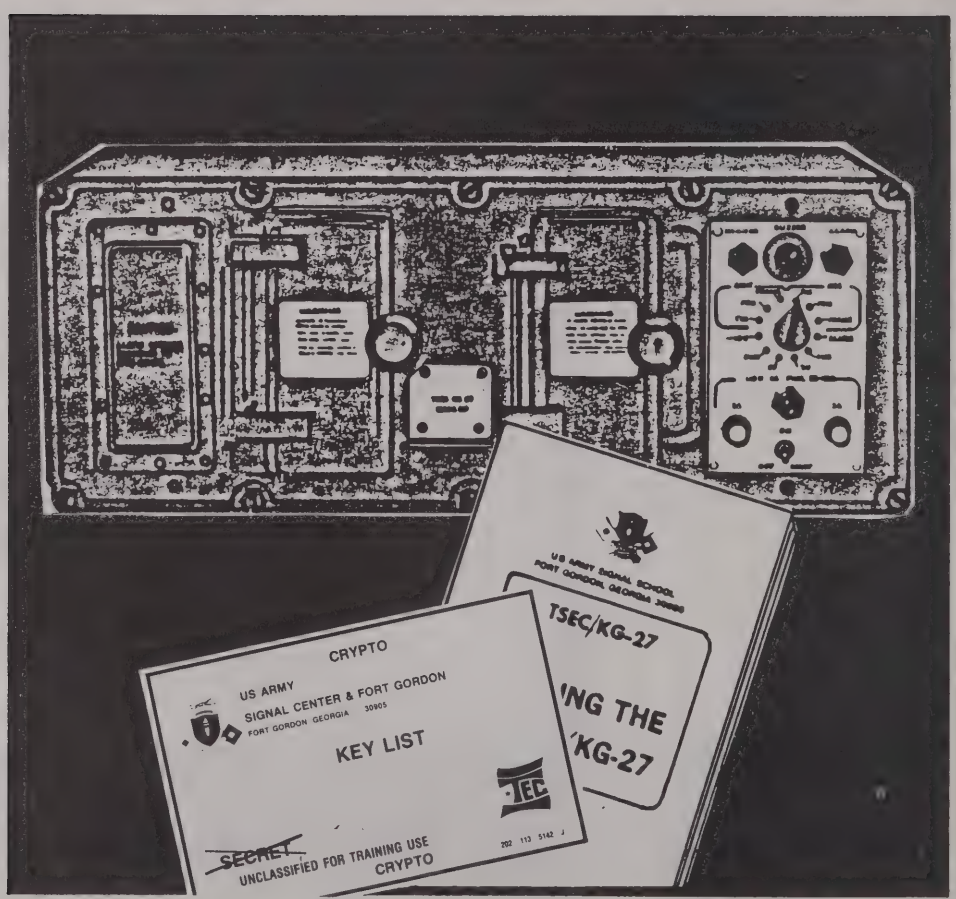
107

Turn the TD-204 MILE switches on the 6A4 and 6A5 panels to the ½ mile position. NOTE: Reference TM 11-5895-366-14-2, paragraph 2-15, e. (3)(f), page 2-59.



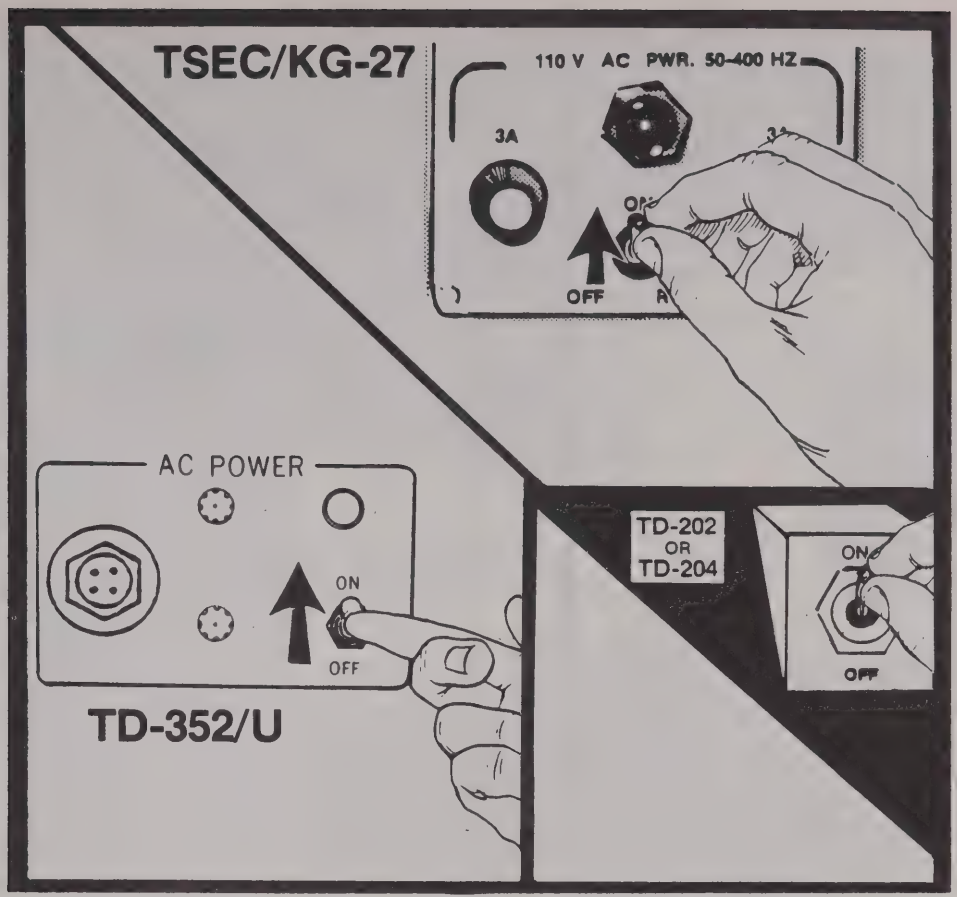
108

Now you must key the TSEC/KG-27 using TEC Lessons 202-113-5142-A and 202-113-5142-J.



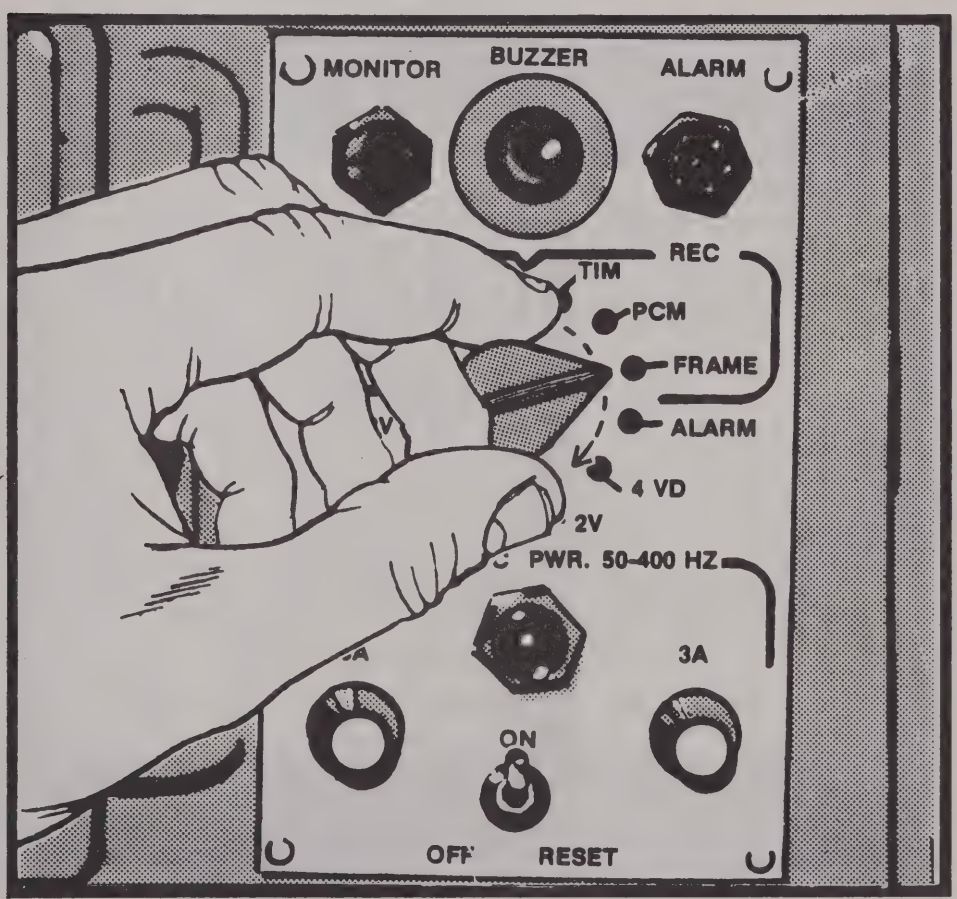
109

Place the power switches of the TD-352/U, TD-204/U or TD-202/U and the TSEC/KG-27 to the ON positions.



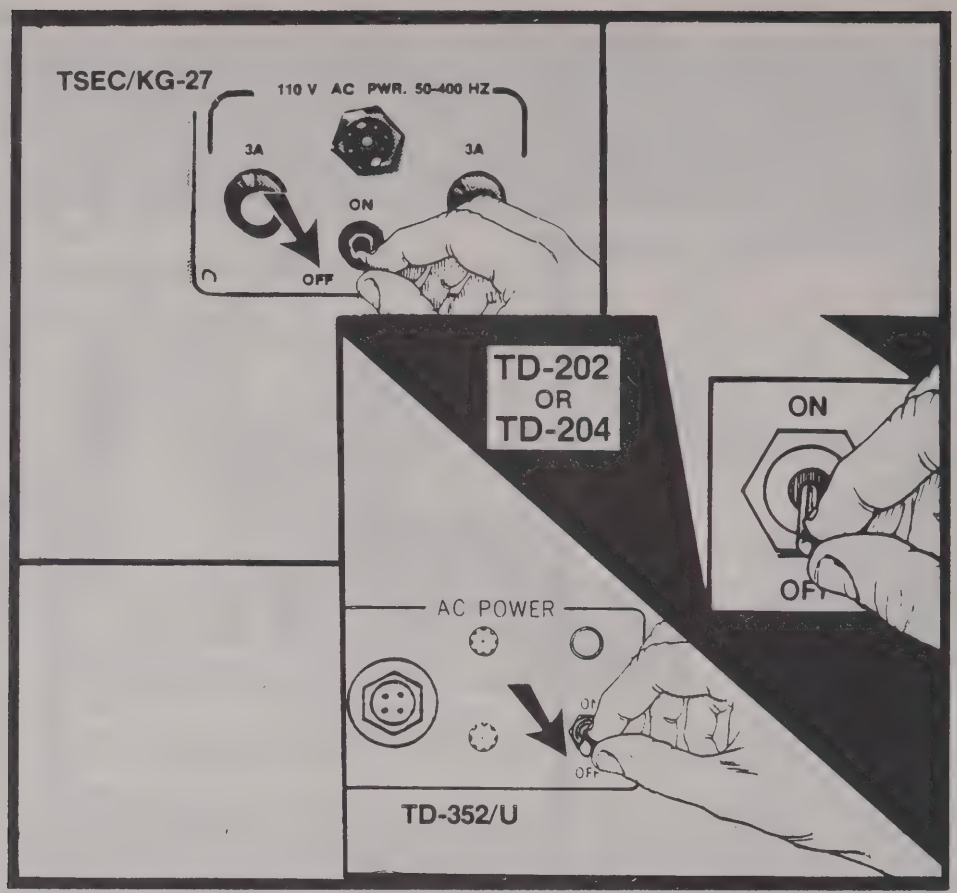
110

Rotate the TSEC/KG-27 monitor select switch to all positions. Ensure that the monitor lamp lights and no alarm condition exists, the TD-352 is in frame, and no visible or audible alarm condition exists.



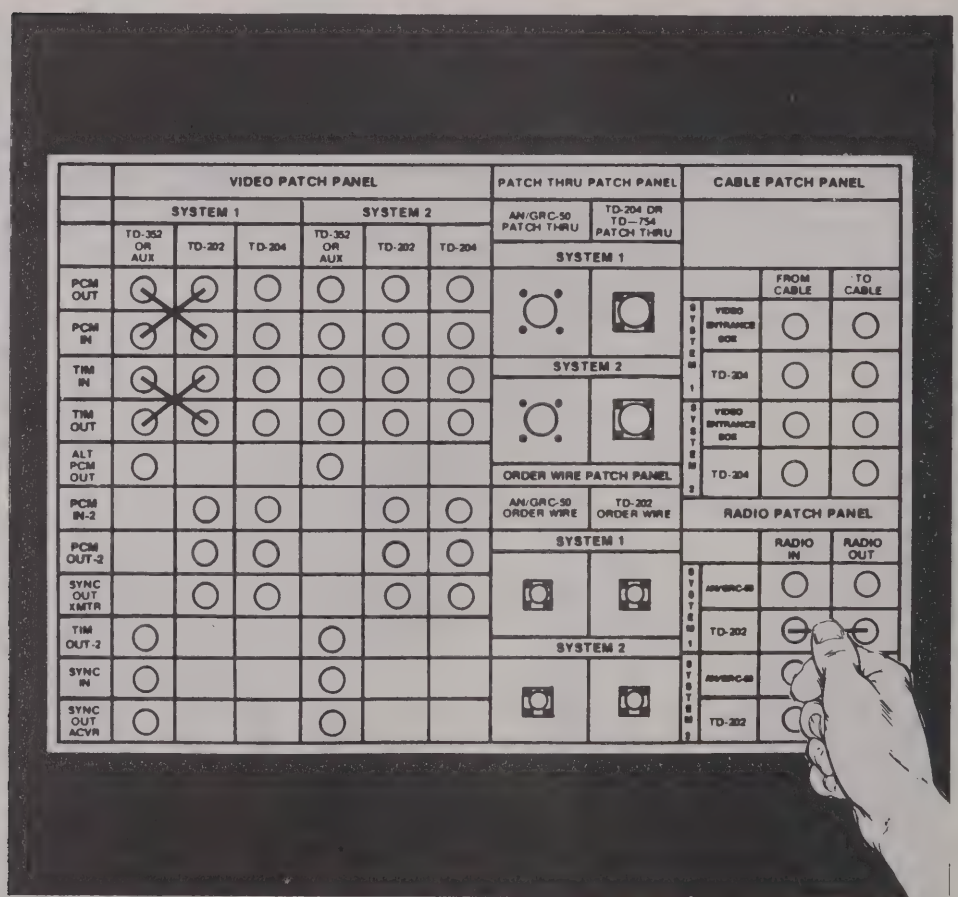
111

If the performance is satisfactory, place the power switches to the OFF position.



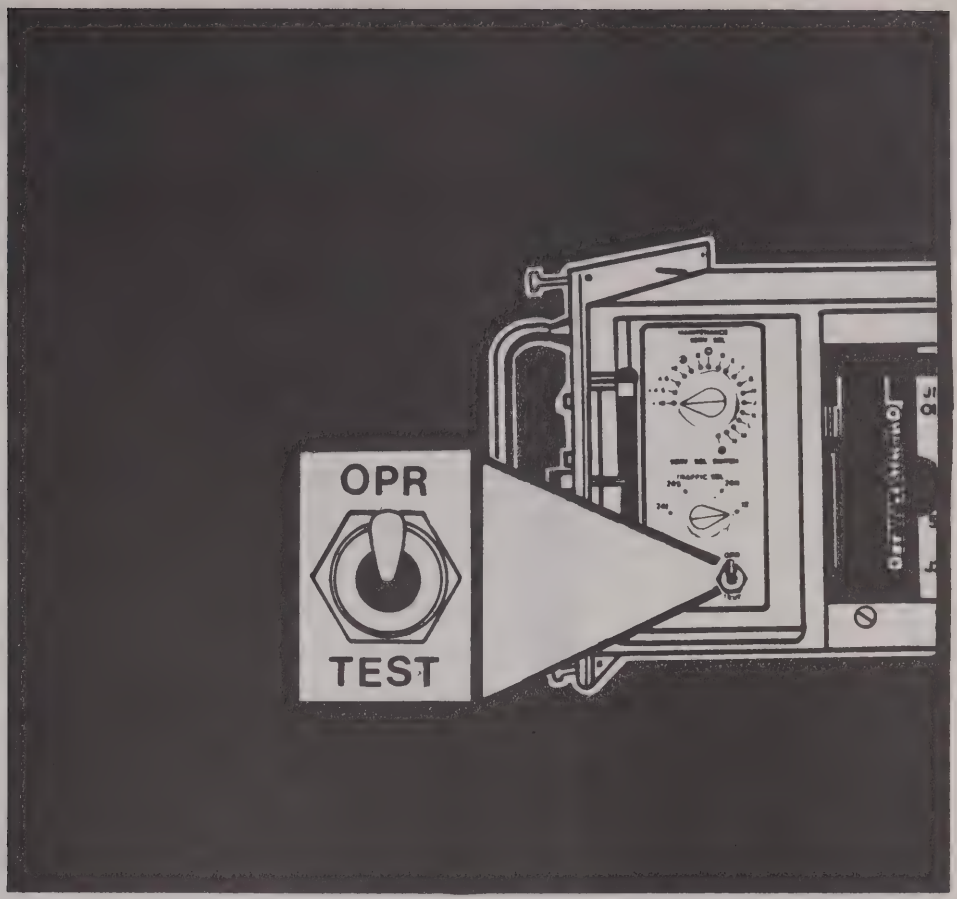
112

If you are operating as a radio terminal, disconnect the loopback on the TD-202 (between the RADIO IN to RADIO OUT connectors) on the patch panel.



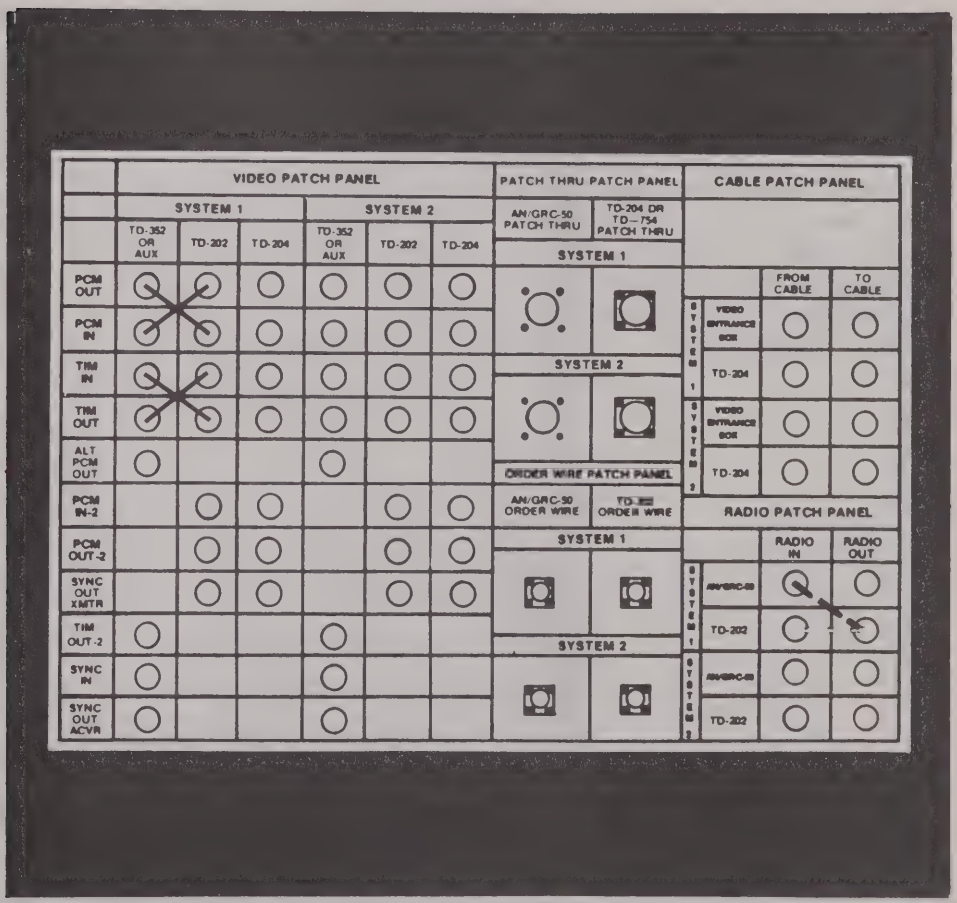
113

Set the OPR-TEST switch on the TD-202 to OPR.



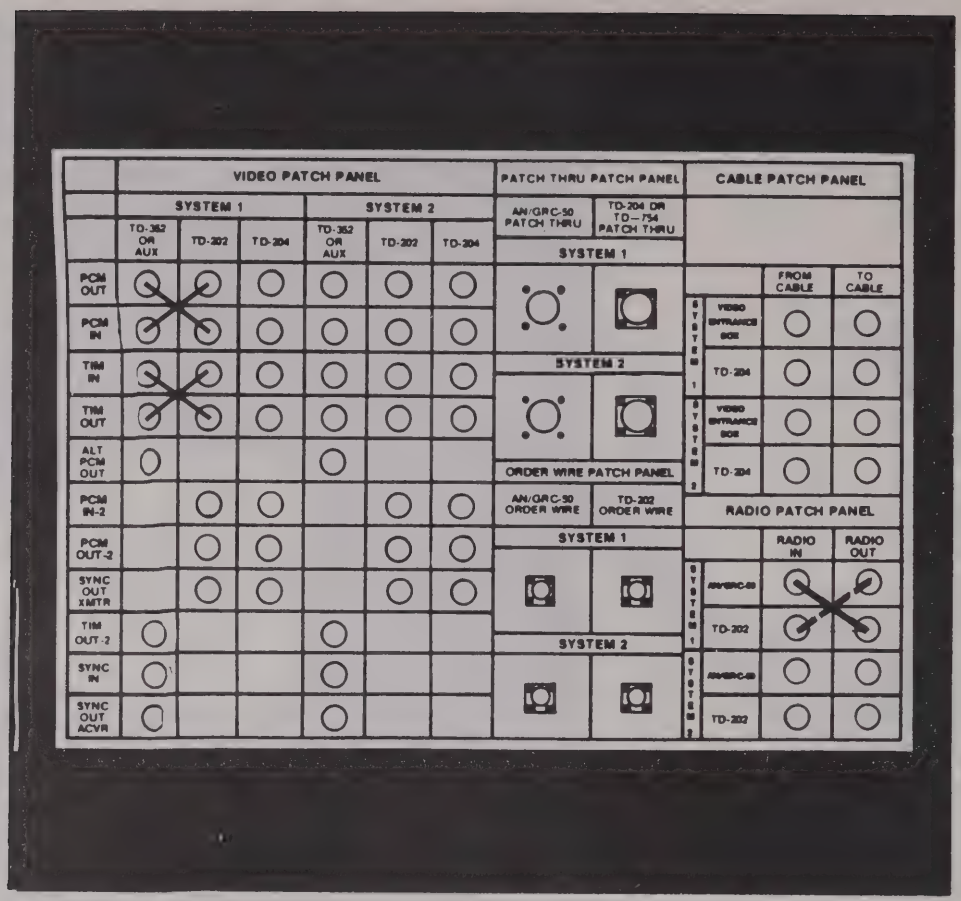
114

Now, on the Patch Panel, connect a patch cable between the System 1 AN/GRC-50 RADIO IN connector and the TD-202 RADIO OUT connector.



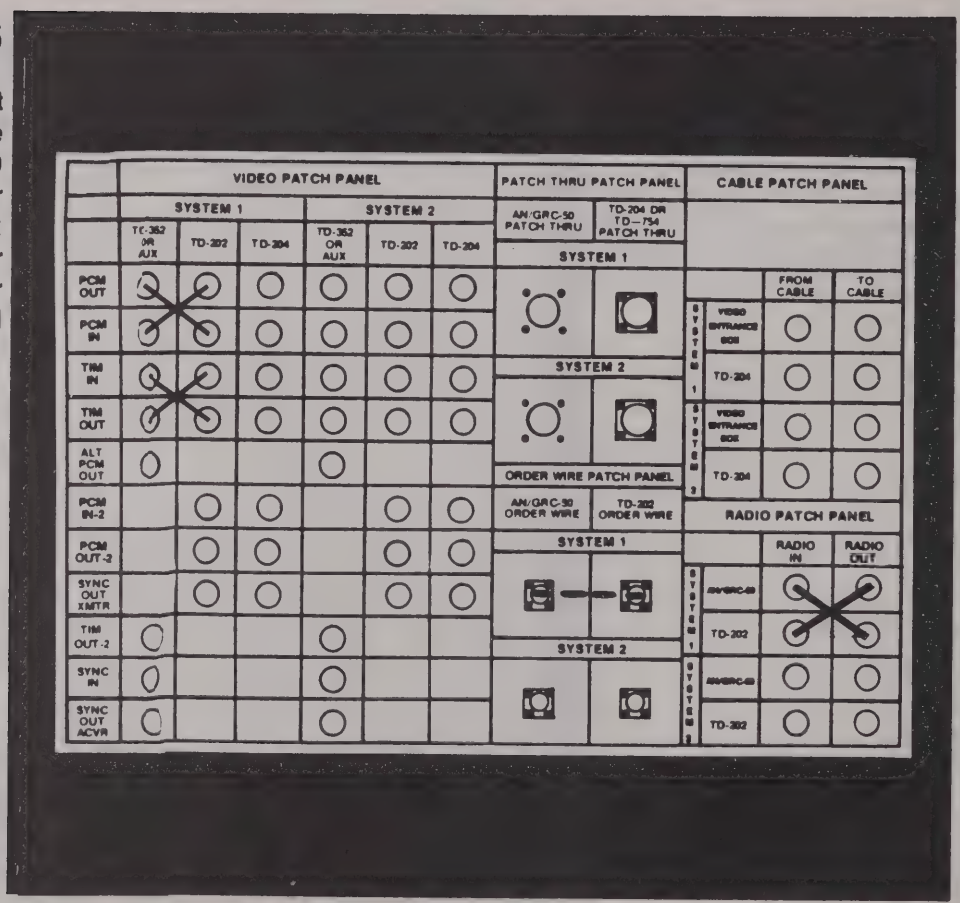
115

Connect another patch cable between the AN/GRC-50 RADIO OUT connector and the TD-202 RADIO IN connector.



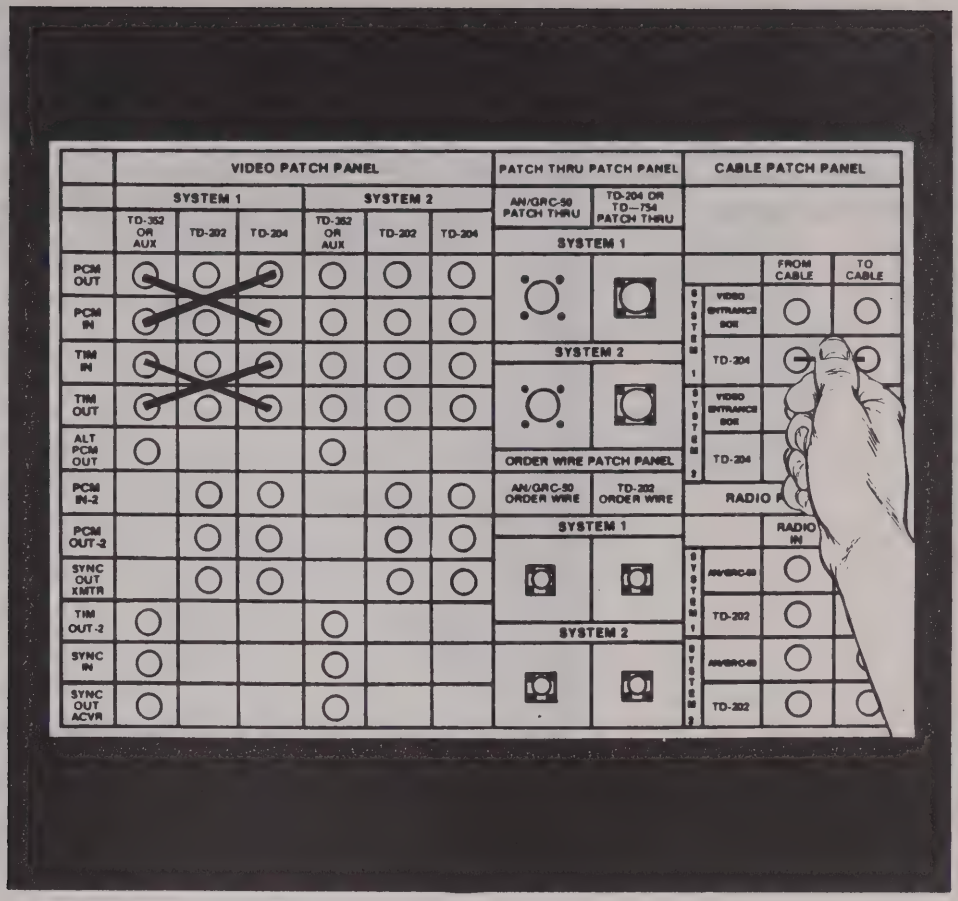
116

For the last patch, connect a patch cable between the System 1 AN/GRC-50 ORDER WIRE connector and the TD-202 ORDER WIRE connector. Your equipment is now ready for operation as 12-channel secure radio terminal.



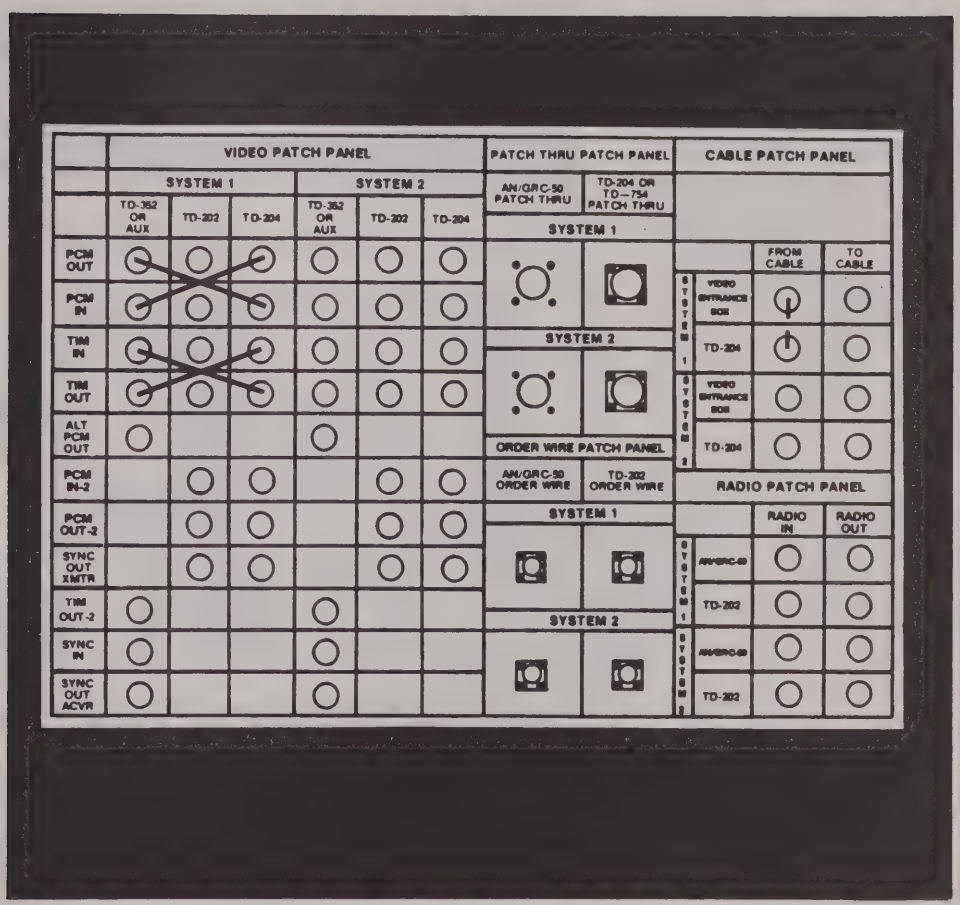
117

If you are operating as a Cable Terminal, remove the loopback on the TD-204 (between the FROM CABLE and the TO CABLE connectors) on the patch panel.



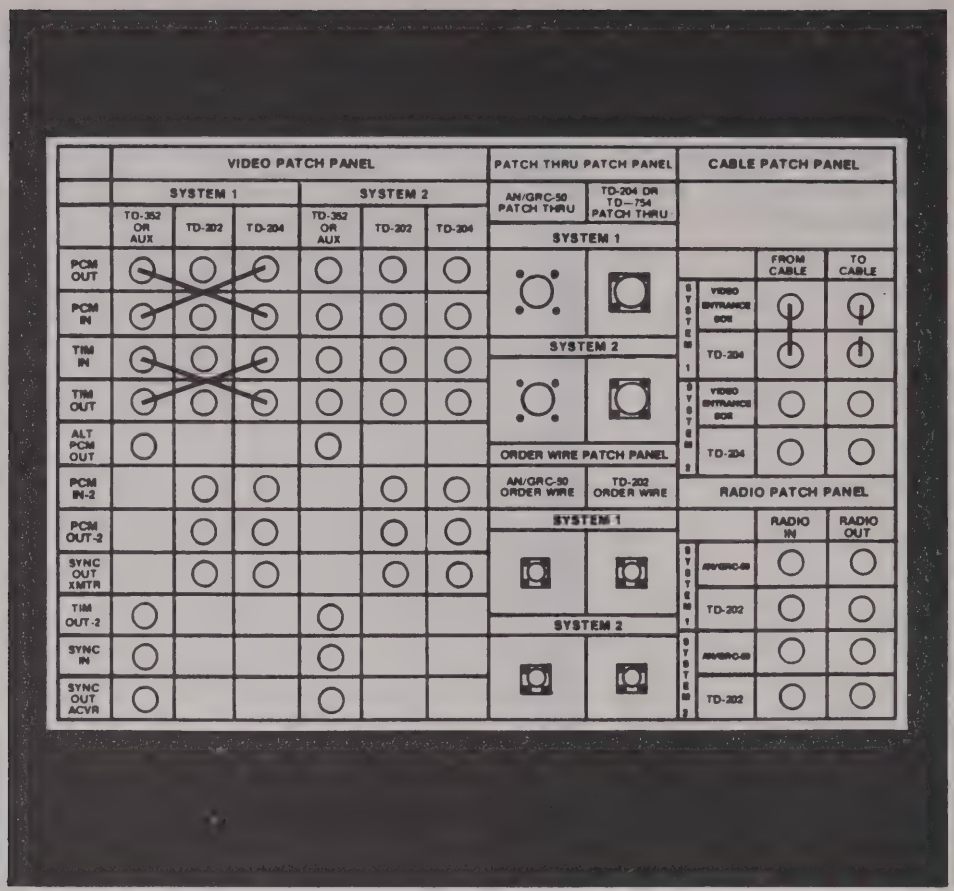
118

Then connect a patch cable between the System 1 TD-204 FROM CABLE connector and the video entrance box FROM CABLE connector.



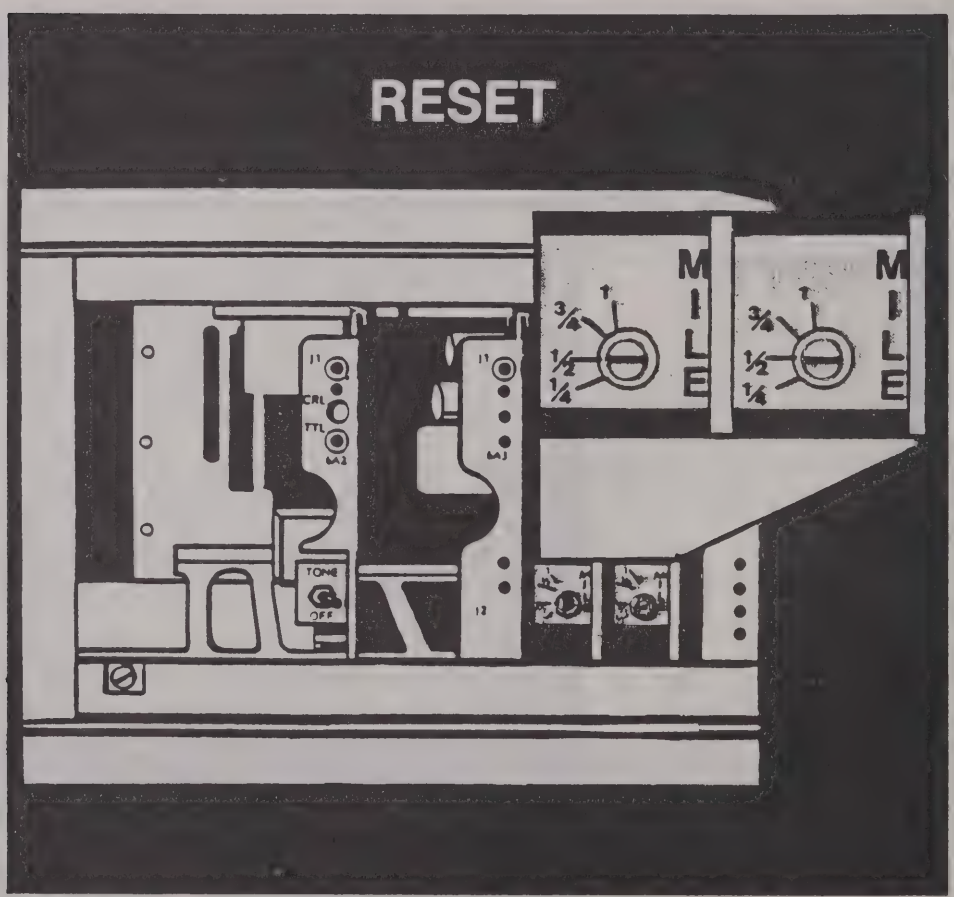
119

Finally, connect a patch cable between the System 1 TD-204 TO CABLE and the video entrance box TO CABLE connector.



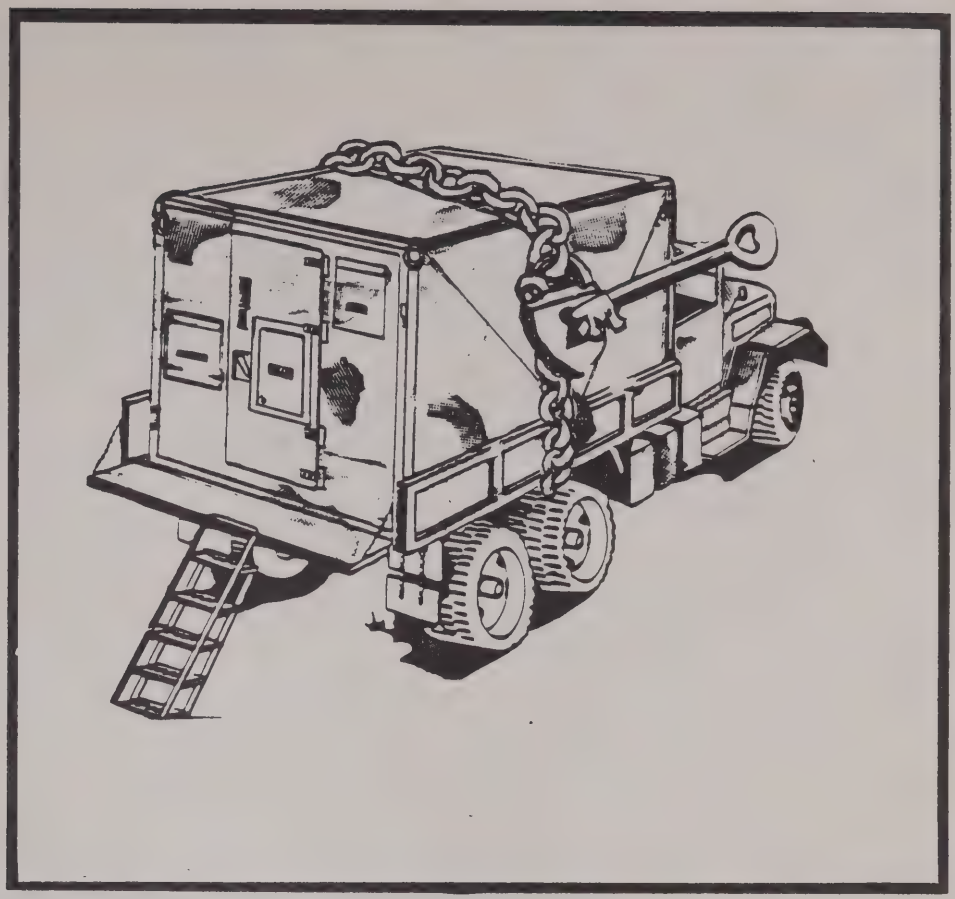
120

Reset the MILE switches to the correct operating position (reference TM 11-5895-366-14-2, paragraph 2-14, f. (7) and note page 2-49).



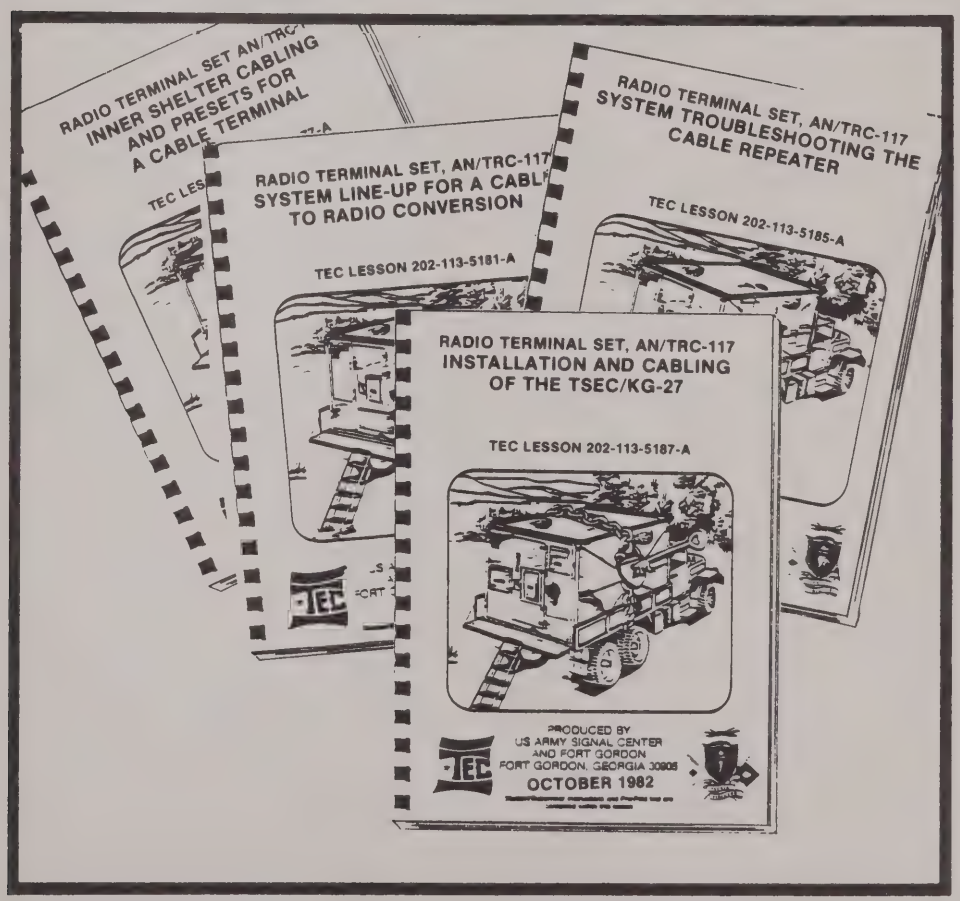
121

This completes installing, cabling, and patching the TSEC/ KG-27. The tasks you've learned in this lesson are very important. Your secure system will not be operational unless you can perform these tasks correctly. So, if you feel that you need more practice, go over this lesson again.



122

You have now completed TEC Lesson 202-113-5187 Installation and Cabling of the TSEC/KG-27. For more information on the Radio Terminal Set, AN/TRC-117, take some additional lessons in the AN/TRC-117 series.



PRETEST/POSTTEST ANSWER KEY
(Over)

PRETEST/POSTTEST ANSWER KEY

School: Signal
MOS: 31M

TEC Lesson
202-113-5187-A

Radio Terminal Set, AN/TRC-117
Installation and Cabling of the TSEC/KG-27

This is the GO/NO-GO checklist for TEC Lesson 202-113-5187-A. Each soldier must perform procedures with 100% accuracy. If the soldier gets less than 100%, he must take/retake this lesson.

TIME STARTED: _____ GO NO GO

1. Install and cable the TSEC/KG-27 in system 1 of an AN/TRC-117 without a patch panel.

   a. Before you start, make sure the POWER switches are turned OFF on System 1 TD-202, TD-204, and TD-352. Disconnect the cables between the two components at the TD-202 or TD-204. Leave the other ends attached to the TD-352.

      WARNING: To prevent a TEMPEST hazard, disconnect Telephone Set TA-312/PT.

   b. Remove the six cables (five special and one power) from the TSEC/KG-27 Installation Kit.

   c. Connect the Adapter Connector UG-1923/G to the TD-352/U TO AUX connector.

   d. Cable the TSEC/KG-27 to the TD-352/U for a loop-back check.

      (1) Connect cables from TD-352 to TSEC/KG-27.

      (2) Connect PCM OUT cable, from TD-352 to the XMIT PCM IN connector on rear of KG-27.

      (3) Connect TIM OUT cable from TD-352/U to XMIT TIM IN connector on rear of KG-27.

      (4) Connect PCM IN cable from TD 352/U to XMIT PCM OUT connector of KG-27.

      (5) Connect TIM IN cable from TD 352/U to XMIT TIM OUT connector of KG-27.

   e. Connect five special cables between Adapter Connector UG-1923/G on front of TD-352/U to rear of KG-27.

(1) AUX ends connect to KG-27. MUX ends connect to Adapter Connector on TD 352/U.

(2) Connect MUX RCVR AUX CLK to RCVR AUX CLK connector on Adapter.

(3) Connect MUX RCVR AUX ADRS to RCVR AUX ADRS connector on Adapter.

(4) Connect MUX AUX ADRS to Adapter at AUX ADRS connector.

(5) Connect MUX PCM TO AUX to Adapter PCM TO AUX connector.

(6) Connect MUX PCM FR AUX to Adapter PCM FR AUX connector.

(7) Now route unconnected ends from TD-352 to rear of equipment rack.

(8) Route cables up to KG-27 rack and bring them in from the rear.

(9) Connect AUX REC TIM IN to REC TIM IN connector on rear of KG-27.

(10) Connect AUX REC FRAME IN to REC FRAME IN connector on rear of KG-27.

(11) Connect AUX XMIT FRAME IN to XMIT FRAME IN connector.

(12) Connect AUX REC PCM IN to REC PCM IN connector.

(13) Connect AUX REC PCM OUT to REC PCM OUT connector.

f. Connect three-pin female connector (of power cable) to POWER IN connector on rear of KG-27.

g. Place power switch on front of KG-27 to OFF/ RESET.

h. Plug KG-27 power cable into ac receptacle at side of equipment rack.

i. Key the TSEC/KG-27 (TEC Lessons 202-113-5142-A and 202-113-5142-J).

j. Turn power switches on TD-352/U and the KG-27 to ON.

k. Rotate TSEC/KG-27 monitor select switch to all positions (lamps should light, no alarm conditions).

l. Place power switches to OFF, and disconnect PCM IN and TIM IN cables at TD 352/U only. Other ends remain connected to KG-27.

m. Connect cable from KG-27 XMIT PCM OUT to TD-202 or TD-204 PCM IN 1.

n. Connect cable from KG-27 XMIT TIM OUT to TD-202 or TD-204 TIM IN connector.

o. Get two more CG-1040B/U cables from storage area. Connect one cable to PCM IN connector on TD-352 and other end to PCM OUT 1 connector on TD-202 or TD-204.

p. Take other cable and connect one end to TIM IN connector on TD-352, and other end to TIM OUT 1 connector on TD-202 or TD-204.

q. Slide TSEC/KG-27 part way into its assigned space.

r. For radio terminal operation, connect a short CG-409 cable from the FROM RADIO RCVR connector to the TEST OUT connector on the TD-202. Put the OPR TEST switch to TEST.

s. For cable terminal operation, connect the CG-2437 end of the LOOPBACK CABLE to the TO CABLE connector on the TD-204. Connect the CG-2438 end of the LOOPBACK CABLE to the FROM CABLE connector. And connect the free end of these two loopback cables together.

t. Turn the TD-204 MILE switches on the 6A4 and 6A5 panels to the 1/2 mile position.

u. Turn on POWER switches on KG-27, TD-352, and TD-202 or TD-204.

v. Rotate TSEC/KG-27 Monitor Select switch to all positions. Check lights, alarm.

w. Turn off POWER switches on TSEC/KG-27, TD-352, and TD-202 or TD-204.

x. For radio terminal operation, remove the TD-202 LOOPBACK CABLE and place the OPR TEST switch to OPR.

y. For radio terminal operation, connect the FROM RADIO RCVR, to RADIO XMTR and ORDER WIRE cables from the AN/GRC-50 to the TD-202.

z. For cable terminal operation, remove the TD-204 LOOPBACK CABLE and operate the MILE SWITCHES to the correct operating positions.

aa. For cable terminal operation, connect the FROM CABLE and the TO CABLE to the TD-204.

TIME STOPPED:_____

TIME STARTED: _____ **GO NO GO**

2. Install and cable the TSEC/KG-27 in System 1 of an AN/TRC-117 with a patch panel.

   a. Before you begin make sure the power switches are in the OFF position on the TD-202, TD-204, and the TD-352.

      WARNING: To prevent a TEMPEST hazard, disconnect Telephone Set TA-312/PT.

   b. Remove the six cables (five special and one power) from the TSEC/KG-27 Installation Kit.

   c. Connect Adapter Connector UG-1923/G to the TD-352 TO AUX connector.

   d. Disconnect cables at Secure-Bypass box and reconnect them to the TSEC/KG-27.

      (1) Disconnect top left cable and reconnect it to XMIT PCM IN connector on rear of KG-27.

      (2) Disconnect bottom left cable and reconnect it to XMIT TIM IN connector on rear of KG-27.

      (3) Disconnect top right cable and reconnect it to XMIT PCM OUT connector on rear of KG-27.

      (4) Disconnect bottom right cable on Secure-Bypass box and reconnect it to XMIT TIM OUT connector on rear of KG-27.

   e. Connect 5 special cables between TD-352 and KG-27.

      (1) Connect cable end labeled MUX RCVR AUX CLK to RCVR AUX CLK on Adapter.

      (2) Connect cable end labeled MUX RCVR AUX ADRS to RCVR AUX ADRS on Adapter.

      (3) Connect cable end labeled MUX AUX ADRS to Adapter at AUX ADRS connector.

      (4) Connect cable end labeled MUX PCM TO AUX to Adapter PCM TO AUX connector.

      (5) Connect cable end labeled MUX PCM FR AUX to Adapter PCM FR AUX connector.

   f. Connect other ends of cables to KG-27.

      (1) Route unconnected ends to rear of equipment rack.

      (2) Route cables to KG-27 rack, bring them in from the rear.

(3) Connect cable end labeled AUX REC TIM IN to REC TIM IN on rear of KG-27.

(4) Connect cable end labeled AUX REC FRAME IN to REC FRAME IN connector to rear of KG-27.

(5) Connect cable end AUX XMIT FRAME IN to XMIT FRAME IN connector.

(6) Connect cable end AUX REC PCM IN to REC PCM IN connector.

(7) Connect cable end AUX REC PCM OUT to REC PCM OUT connector.

(8) Connect power cable (3-pin female connector) to POWER IN connector on rear of KG-27.

WARNING: Place power switch of TSEC/KG-27 to OFF/RESET position.

g. Plug KG-27 power cable into ac receptacle on side of equipment rack.

h. Radio terminal connections for loopback at patch panel...

(1) Connect patch cable between TD-352 PCM OUT and TD-202 PCM IN.

(2) Connect TD-352 PCM IN to TD-202 PCM OUT.

(3) Connect TD-352 TIM IN to TD-202 TIM OUT.

(4) Connect TD-352 TIM OUT to TD-202 TIM IN.

(5) Connect System 1 TD-202 RADIO IN to System 1 RADIO OUT.

i. Remove CG-409/U cable (on TD-202) from TO RADIO XMTR, and connect it to TEST OUT.

j. Set OPR/TEST switch on TD-202 to TEST.

k. Make cable terminal patches at patch panel for a loopback test.

(1) Connect CG-1040 cable between TD-352 PCM OUT and TD-204 PCM IN.

(2) Connect CG-1040 cable between TD-352 PCM IN and TD-204 PCM OUT.

(3) Connect CG-1040 cable between TD-352 TIM IN and TD-204 TIM OUT.

(4) Connect CG-1040 cable between TD-352 TIM OUT and TD-204 TIM IN.

(5) Connect one end of a CABLE PATCH cable to the system 1 TD-204 TO CABLE connector

(6) Connect the other end of the CABLE PATCH cable to the system 1 TD-204 FROM CABLE connector

l. Turn the TD-204 MILE SWITCHES on the 6A4 and 6A5 panels to the ½ mile positions.

m. Key TSEC/KG-27.

(1) Place power switches of TD-352/U, TD-204/U, or TD-202/U, and TSEC/KG-27 to ON positions.

(2) Rotate TSEC/KG-27 monitor select switch to all positions (no lights or alarms should exist).

(3) Place power switches OFF.

n. Radio terminal operation...

(1) Disconnect loopback on TD-202 (between the Radio IN to Radio OUT) on the patch panel.

(2) Set OPR-TEST switch on TD-202 to OPR.

(3) Connect cable from System 1 AN/GRC-50 RADIO IN connector to TD-202 RADIO OUT on Patch Panel.

(4) Connect AN/GRC-50 RADIO OUT to TD-202 RADIO IN.

(5) Connect System 1 AN/GRC-50 ORDER-WIRE to TD-202 ORDERWIRE.

o. Cable Terminal operation ...

(1) Disconnect loopback on TD-204 (between FROM CABLE to TO CABLE) on the patch panel.

(2) Connect cable from System 1 TD-204 FROM CABLE to video entrance box FROM CABLE.

(3) Connect patch cable from System 1 TD-204 TO CABLE and video entrance box TO CABLE.

(4) Reset MILE switches to correct operating position.

TIME STOPPED:_____